

SURGERY

Edited by S. S. Peikoff, M.D.

Massive Haemorrhage from Peptic Ulcer

S. S. Peikoff, M.D., F.R.C.S. (Ed.), F.A.C.S. (C)

Bleeding is the most common complication of peptic ulcer, and yet, in reviewing the literature on this subject, one is impressed with the amount of confusion that exists when it comes to the management of bleeding peptic ulcer. There is also a considerable amount of conflict between the internist and the surgeon. This is due to the fact that in the past, statistics were completely unreliable, since there was no attempt at classification of the bleeding into groups according to the degree or severity of haemorrhage or to the age of the patient. The latter two are most important factors which dictate the manner in which a case should be handled.

In more recent years there has been an attempt to classify haemorrhage from peptic ulcer:

1. **Small or Minor Haemorrhage:** The patient may get a bout of weakness at work and pass a tarry stool the following day. He does not necessarily stop work or even consult a doctor. Information is often obtained subsequently by taking a history. Two ounces of blood is enough to produce melaena, and yet a pint of blood may be lost into the intestines without clinical evidence¹.

2. **Gross Haemorrhage:** The patient vomits dark, tarry or bloody material and passes dark tarry stools. He may faint or get a sudden attack of weakness. His blood pressure drops, but in a relatively short time returns to normal. The haemoglobin rarely falls below 60 or 70%. There may be tarry stools for many days due to repeated haemorrhages, leading to a progressive anaemia with weakness, dizziness and general malaise.

3. **Massive Haemorrhage:** The onset and course is fairly characteristic. The patient feels suddenly nauseated, weak and dizzy. He vomits a variable amount of bright red blood or coffee-ground material. The stools may be tarry or even bloody. There are always definite signs of shock and collapse. The skin becomes cold and clammy, the pulse rapid and thready. He is restless and probably dyspnoeic. Haemorrhage is defined as massive when a patient has a red-blood count of 2 million and a hemoglobin of 30%, this being accepted as a base-line².

One can readily appreciate the importance of establishing such a classification and statistics should be compiled on the basis of these groups, comparing them separately rather than as one

whole group. Minor and gross haemorrhages are treated entirely medically. In the latter the surgeon is called in to do an elective operation at some future date. It is in massive haemorrhage where medical and surgical treatment are at conflict.

Massive haemorrhage originates from three different sources:

(a) In the duodenum: The most severe and persistent bleeding and likely to prove fatal, results from erosion of the pancreatico-duodenal artery in the posterior wall of the duodenum. Wilmer describes two pancreatico-duodenal arcades supplying the first part of the duodenum. The arcades communicate by large anastomosing trunks running along the postero-medial aspect of the duodenum. Thus erosion of one of these large communicating branches or the artery itself is the cause of massive haemorrhage, as opposed to erosion of sub-mucosal vessels being responsible for gross or minor haemorrhage.

(b) In the stomach: Massive haemorrhage usually results from erosion of a right or left gastric artery along the lesser curvature or less often of the gastro-epiploic artery on the posterior wall of the stomach.

(c) Generalized oozing may occur—at operation the stomach may be opened and the mucosa found to be oozing generally and yet it may be difficult to discover the exact source of bleeding at operation or even at post-mortem. Heuer reports such a case in which the pathologist could not find the erosion in the mucosa. He injected the gastric artery with saline under pressure and noticed a jet of fluid from the mucosal lining. Serial section showed a small ruptured aneurysm in the mucosa.

Severe bleeding results when one of the large vessels is eroded transversely or laterally. If the vessel is eroded transversely, the bleeding end retracts and haemorrhage may be transient. If a section of the wall sloughs out, however, it cannot retract, so that haemorrhage is likely to be continuous.

In older people there are two other important factors. In those over 45 years of age, there will naturally be a long history of ulcer so that there is marked chronic induration at the base with dense scar tissue formation which will prevent the retraction of the vessels. Secondly, the presence of generalized arteriosclerosis will have the same effect. In these cases, a soft clot may form, but because there is no retraction, this is soon

digested by the gastric juices, dislodged and bleeding recurs. The fact remains that 75% of haemorrhages occur in patients over 45 years of age. Vital statistics confirm this by the fact that 80 to 90% of all deaths occur after 45 years; so that the mortality rate increases with the age of the patient and the presence of arteriosclerosis.

The General Effects

Amendola³, of the Roosevelt Hospital in New York, stresses the effect of sudden acute anaemia and the sustained low blood pressure or hypotension on various organs and tissues of the body. The immediate effect of the loss of blood with its rapid blood volume decrease and hypotension is circulatory failure with damage to the medullary centres which may even be fatal. Prolonged low blood pressure and anaemia results in cerebral anaemia with stupor, delirium or convulsions. It may produce coronary insufficiency with anginal pains and permanent damage to the heart from infarct. Low blood volume results in diminished kidney filtration with oliguria, anuria, and rise in B.U.N. and N.P.N.

Severe gastrogenic bleeding produces a marked elevation of blood urea nitrogen in 8 to 10 hours which remains elevated for 24 to 36 hours and, if severe, resembles uremia. Recent investigation shows that this is not due to the anaemia but to the absorption of digested blood proteins and prolonged fall in blood pressure. Either one of these factors will increase the B.U.N. but a combination of both results in higher azotemia. This is of value clinically. Sustained rise in blood urea nitrogen in the absence of kidney disease indicates persistent bleeding. A B.U.N. of 100 mgms. is a very severe prognostic sign.

Diagnosis

Diagnosis of massive gastrogenic haemorrhage may be extremely difficult, since one may be in hopeless doubt as to the source of haemorrhage. Often haemorrhage is the first and only symptom of peptic ulcer. 80% of massive haemorrhage is due to peptic ulceration but 20% originates from oesophageal varices, purpura, lymphosarcoma, polyposis, haemorrhagic gastritis and carcinoma. Carcinoma very rarely causes severe bleeding. Finsterer⁵ in 1934 reported a series of 710 cases of carcinoma of which only 3 had massive haemorrhage. The history is usually of no value since other gastric lesions are associated with indigestion or the patient may be too ill to give a satisfactory history.

Gastroscopy is definitely contra-indicated. If the patient recuperates temporarily from his haemorrhage, barium may be given by mouth and x-rays are permissible. The danger is not in the barium but in trauma to the viscera by manipulation under fluoroscopic examination. If haemor-

rhage is massive and uncontrolled it may be so serious that immediate operation is imperative and one may have to do an exploration without a diagnosis.

Treatment

The treatment of all groups of haemorrhage, small, gross, or massive is medical in all instances to begin with.

a. Combat shock: keep at rest, quiet and warm, along with mild sedation.

b. Check progress repeatedly: chart pulse, B.P., every half hour. Repeat Hb, Haematocrit, and Blood urea as indicated.

c. Blood transfusions.

d. Diet: The old Sippy diet of starvation with a mortality rate ranging from 4 to 58% has been more or less discarded since Meulengracht⁶ in 1934 reduced the mortality rate to 1.2% in the treatment of 251 cases with semi-solid foods. He concluded first, that food in the stomach diminishes the violent hunger contractions which are thought to dislodge the blood clot in the mouths of the vessels, whereas the well-filled stomach maintains a constant and continuous pressure on its contents which tends to compress an open vessel and promote clot formation; second, food fixes the gastric secretions and prevents the acids from digesting the clots; and third, and probably the most important factor is that these patients suffering from chronic indigestion with starvation are already in a state of hypoproteinemia while bleeding further depletes the protein reserves so that food high in protein value is a most important factor in correcting this deficiency and promotes healing.

e. The ice-bag is definitely condemned by all. Anderson states that the only value of the ice bag is to keep the patient still while he balances it on his abdomen. The disadvantage is the lack of sleep for fear it will fall off; but more important, is the fact that it increases shock. Ice chips by mouth are also condemned since they cause hyperemia of the stomach mucosa and promote bleeding.

This regime will be effective in almost 100% of patients under 45 years of age and 70% of those over 45 years. 30% of patients over 45 years will die because of the associated arteriosclerosis and chronicity of the ulcer which delay clotting. It is this 30% which creates the dilemma of surgical versus medical treatment. Walters⁷ points out that the difficulty lies in "how to recognize the 70% that are going to get better under medical treatment because some may die if attacked surgically; on the other hand, how to recognize the 30% who die under medical treatment, some of whom could be saved by surgery."

Another extremely important point which has not been recognized in the past is that, if surgery is contemplated at all, it must be performed within

48 hours. We know that the continuous and progressive low blood pressure and low blood volume does irreparable damage to the brain, heart and kidneys. No surgeon will attempt operation on a patient uncontrolled by blood transfusions after 72 hours since the mortality rate is 100%. Finsterer¹ reported a mortality of 29.7% following surgery after 48 hours of haemorrhage as opposed to a 5% mortality rate in those done under 48 hours. Gordon Taylor⁸ reports 18 cases operated on during a period from 1933 to 1939 within 24 hours of the onset of bleeding with a mortality rate of 5.5% (i.e. 1 death) whereas 7 patients done after 24 hours with a mortality rate of 59% (4 deaths).

Surgery must be considered in all cases of acute massive haemorrhage in patients over 45 years of age, especially those with arteriosclerosis; and in these cases, the internist, the surgeon, and the anaesthetist should work together from the beginning and make every effort to single out those cases which will require surgery to control the haemorrhage. Surgeons unanimously agree that all patients over 50 years of age with massive haemorrhage are potential candidates for emergency surgery, but there are no stereotyped rules for selection of these cases. Different surgeons have different criteria. Graham⁹ states that in patients over 50 with the Hb below 50 one should consider surgery while in those under 50 one may expect an excellent prognosis medically. Rankin's¹⁰ indications are as follows:

(a) Patients over fifty with massive haemorrhage. (b) Those with previous severe bleeding (c) In arteriosclerotic patients who fail to respond to one or more transfusions and continue to bleed. Hollman¹¹ operates on those with recurring haemorrhage or persistent bleeding after complete bed rest; or those where a haemorrhage begins while patient is receiving adequate medical treatment. Hinton¹² describes his transfusion test; if after two blood transfusions of 500 cc's each, the Hb and the blood pressure remain low, one may assume that a large vessel has been eroded and surgical intervention is indicated.

The final opinion therefore is to operate only on those patients who are bleeding to death despite medical treatment and transfusions. The criterion for operation even under 45 is failure to maintain a stable circulation despite transfusions of 500 cc every 8 hours, i.e., attacks of syncope, rapid pulse, low Hb, and persistently low blood pressure despite transfusions. Recurrent fainting or syncope is a most valuable single sign. Those patients who do not have syncope or fall of blood pressure are not candidates for immediate operation.

Surgical Treatment

As soon as the abdomen is opened a gastrostomy is done in order to inspect the gastric mucosa thoroughly and an attempt is made to

control the individual bleeding vessels by ligature or mattress sutures inserted from the inside of the viscus. The operation of choice is partial gastrectomy, with removal of the ulcer wherever this is feasible. Other methods may be used in dire emergency. Even though patients are critically ill, gastric resection of two-thirds of the stomach is the ideal procedure. Plastic operations or gastroenterostomy are useless. Recurrent bleeding occurs in 4% of gastric resections and in 45% of all other methods.

Presentation of Cases

Case 1—Mr. J. H., age 19. Admitted with massive haemorrhage in June, 1943. Medical treatment was instituted for 24 hours but the blood pressure remained low and the Hb continued to fall even while transfusions were given continuously. A Barium series revealed a huge dilated stomach with 100% retention after 6 hours. Complete obstruction complicating haemorrhage adds at least 60% to the risk. It is for this reason that an exploratory operation was decided upon. The duodenum was opened and the bleeding vessel in the centre of a posterior duodenal ulcer was closed by oversewing the edges of the ulcer. A gastroenterostomy was done. He did not respond well. On the tenth post-operative day there was evidence of proximal loop obstruction. Under local anaesthesia a duodeno-jejunostomy was done. Following this his course was uneventful and he was discharged from the hospital in two weeks. In 1945 (2 years later) he was readmitted to the hospital with severe haemorrhage which was readily controlled by medical treatment and an elective gastrectomy was performed with an excellent post-operative result.

Massive haemorrhage complicated by complete obstruction treated by ligation of the bleeding vessel and gastro-enterostomy. Recurrent haemorrhage was controlled medically and elective gastrectomy performed.

Case 2—Mr. R. O., age 40. Admitted in April, 1948, with gross gastro-intestinal haemorrhage. There was a history of 3 previous similar haemorrhages. A number of transfusions were given and circulation stabilized but he continued to have tarry stools. On May 13, 1948, while under treatment he had an attack of syncope, passed a large tarry stool and went into moderate shock. He was given 1500 cc's of blood and a sub-total gastrectomy was done. His post-operative course was uneventful.

Recurring massive haemorrhage while under adequate medical treatment treated by sub-total gastrectomy.

Case 3—(Described by Dr. M. Bennett). J.W., age 63. Admitted to the hospital with massive gastric haemorrhage and was treated medically with good response. A second massive haemorrhage occurred 11 days later, accompanied by syncope, restlessness, marked hypotension followed by de-

lirium and coma. He soon became pulseless, cold and clammy. Dr. R. Letienne was called in consultation and an emergency gastrectomy was decided upon. At operation, gastrostomy revealed an ulcer 2½ inches by 2 inches in the posterior wall of the stomach and in its base was the gaping end of the right gastric artery occluded by a soft clot. On account of the friability of the base it was impossible to tie it off or oversew it. One had no other option but to do a gastrectomy, in spite of his extremely poor condition. This was done and although the post-operative course was stormy for several days he has made an excellent recovery. It is almost 3 months since his operation. His Hb was slow to return but is almost at normal level at present and he has gained 20 pounds.

Recurring massive haemorrhage in a patient over 60 while under adequate medical treatment.

Case 4—S. B., age 66. Admitted to hospital with moderate haemorrhage from an anastomotic ulcer. Had gastro-enterostomy at Mayo Clinic in 1931. In 1948 he had his first haemorrhage which was controlled by rest and blood transfusion. On June 10, 1949, he had another bout of melaena and syncope. He was admitted to the hospital on June 24th, 1949, and medical treatment was given till July 4th. He continued to have tarry stools throughout this period but his circulation was well stabilized. On July 4th there was evidence of massive haemorrhage. Operation was decided upon. The gastro-enterostomy was undone and a sub-total gastrectomy performed. He made an uneventful recovery and was discharged from the hospital on July 15, 1949.

Recurring massive haemorrhage from an anastomotic ulcer in spite of medical treatment.

Conclusion

1. When all cases of peptic ulcer are considered without regard to the type of haemorrhage or the age of the patient, the overall mortality is low—about 1 to 3%. But in acute massive haemorrhage in patients over 50 the mortality rate is 30% with conservative treatment.

2. The term massive haemorrhage should be applied only to acute rapid loss of blood producing shock, +syncope and reducing the red blood cells to 2½ mil. and Hb to 30%. On this basis only should statistics be compiled.

3. Every case of massive haemorrhage in patients over 50 should be considered as a potential surgical emergency. The surgeon should be consulted early and if the circulation cannot be stabilized by blood transfusion within 48 hours immediate surgery is imperative. After 72 hours of uncontrolled haemorrhage surgery is prohibitive since prolonged severe hypotension causes irreparable damage to the vital organs.

4. Sub-total gastrectomy is the operation of choice.

5. Haemorrhage is more dangerous (a) when accompanied by pain (indicating perforation), (b) in the presence of pyloric obstruction; (c) if bleeding recurs while patient is convalescing from a previous episode.

6. There is no conflict between medical and surgical management. Medical and surgical mortality cannot be compared. Surgeons operate only on those patients expected to die without operation so that it is not a question of prohibitive mortality rate but of how many lives can be saved.

7. With our present knowledge of haemorrhagic shock, improvements in anaesthesia and surgical technique, our advanced methods of pre-operative preparation of the patient (correcting fluid balance, anaemia, hypoproteinemia, avitaminosis) one should have more courage to attack those hopeless cases which are otherwise doomed to die.

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The Role of the Anaesthetist in Massive Peptic Haemorrhage

Marjorie Bennett, M.D.

The successful handling of the bleeding ulcer case treated surgically is one of the most difficult problems that confront the anaesthetist.

The patient is in a state of severe anaemia and often in shock. If chronic ulcer symptoms are present or if the patient is treated medically for the first hemorrhage and brought to surgery at a second severe hemorrhage there is superimposed loss of weight, malnutrition, dehydration, hypoproteinemia, and avitaminosis plus whatever pathology exists in other systems. Since surgery is more definitely indicated in bleeding ulcer in the older group of patients, cardiac disease, hypertension, impaired renal function and chronic bronchitis are often found.

The pre-operative, post-operative and operative management all centre around one important therapeutic measure—blood replacement. Transfusion is begun on admission, before it is known whether surgery will be indicated. Complete blood count, hematocrit, plasma proteins, and liver and kidney tests are done. The anaemia will be severe, with red cells in the 2 millions and Hb in the 30s. In massive hemorrhage it is usual to have a certain amount of hemoconcentration. **The tissue fluid which is drawn into the circulation to make up a blood loss does not restore the original blood volume**, so that the total circulating Hb may be much less than is indicated by a red cell count and hematocrit. If dehydration were treated first, the true blood picture would be obtained. Replacement then must be based on the estimated blood loss rather than on any one blood examination. Much larger amounts are necessary than we usually imagine. In a series reported by Stewart, Schaefer, Potted and Massover¹, an average of 3,600 cc was given. The largest amount given in those operated on was 9,400 cc. Formerly it was felt that there was some danger of re-starting hemorrhage if too much blood was given. There is still considerable disagreement about this. Although low blood pressure is said to promote clot formation, slow massive transfusions will restore the blood pressure gradually and do not increase bleeding. The hemostatic and coagulative action of fresh blood is believed to be more important than the fallacious belief that a blood clot can be blown out by increased blood pressure. Nothing will replace blood transfusion in massive hemorrhage. Plasma will raise blood pressure, restore blood volume, and elevate the plasma proteins but it should only be used, if at all, to keep the blood pressure at a minimum safe level of 85-100 systolic while blood is being prepared. Blood is the only substance that will replace lost Hb and restore the oxygen carrying power of the blood to normal. Hypotension and anoxia may produce lasting visceral damage or irreversible shock in a few minutes.

Vitamin K should be given pre-operatively and Penicillin started.

The anaesthetic should be given with a high concentration of oxygen. One cannot recommend a routine safe anaesthetic in all these cases but I think that cyclopropane and curare will be safest in a large percentage of cases. Regional and local block are recommended by Lundy² but I have found that a marked fall in blood pressure occurs after the block is given in many cases, so I hesitate to use it in a case where shock is already present. The same applies to spinal analgesia. Barbiturates cause the spleen to take up erythrocytes and decrease the already low Hb content of the blood. Also it has been shown by Rovenstine³

that the effect of hemorrhage on dogs anaesthetized with Pentothal is more unpredictable than on those anaesthetized with cyclopropane, and that the latter gives the greatest margin of safety and the greatest chance of recovery following hemorrhage. Curare can be used to promote relaxation, and if artificial or augmented respiration is adequately carried out there are no after effects. The main problem during the operation is to continue administration of blood as a resuscitative measure, and also to treat the surgical shock and the surgical blood loss which varies from 500-1000 cc in gastric resection. Blood pressure, pulse, the state of the peripheral circulation and other clinical signs of impending shock or anoxia are used as a guide during operation, always remembering that there is an irreducible minimum amount of blood loss during operation.

Post-operatively, restoration of the blood lost is continued. The clinical condition of the patient is watched and Hb and hematocrit estimations should be done every third day until these are near normal.

There is always some risk connected with blood transfusion so the indications for its use should be definite, and it should not be continued longer than necessary. Reactions result from a variety of causes, e.g., chemical and physical, allergic, hemolytic, transmission of malaria, syphilis, infectious hepatitis. Chemical reactions have been eliminated by the use of plastic disposable tubing. Physical reactions are prevented by the careful technique of administration, i.e., giving it slowly to cardiac cases, and preventing air embolism. Allergic reactions are prevented by carefulness in the blood bank in enquiring into the allergic history of the donor, and the policy of collecting blood 6 hours or more after a meal. Prevention of transmission of chronic infection is also a responsibility of the personnel of the blood bank. Hemolytic reaction, however, cannot be completely eliminated. Errors in matching may occur when a low titer typing serum is used. It may be weak or deteriorated. False positives may occur. The greatest source of error is, however, from clerical mistakes, and this can never be completely eliminated. There are at least 5 specimens to be labelled in the preparation of each transfusion. Serious reactions are usually not diagnosed till anuria develops and at this stage there is a 50% mortality. If a reaction appears, no matter how insignificant, the urine should be checked for precipitated Hb and early treatment instituted, that is, within two hours of the reaction. Results are fairly good if this is done. We are extremely fortunate in having such an excellent blood bank in St. Boniface hospital. It is supervised by Dr. Letienne and Sr. Tougas, and Miss Poirier is responsible for the actual operation of the bank. It is possible to

obtain matched blood for an emergency in 20-25 minutes in most cases. Very rarely, if difficulty in matching is encountered, another 20 minutes might elapse. The supply is kept entirely adequate. For anticipated needs in connection with the operating room, an excellent system has been worked out. Miss Poirier inspects the OR Slate around the noon hour for the following day and lists all cases which might require blood during the operation. Practice has made her selection quite accurate, and if in doubt, she lists the case for blood matching. Her staff matches blood from all these patients in the afternoon and the next morning she has a suitable amount of blood available for every operation where there is even a remote possibility of needing it. There is no service charge to the patient unless blood is used. This has been found to work very well. It spaces the work of the blood bank staff so that they are not overrun with work during the morning hours. It creates safe conditions for the patient, and it takes a load off the anaesthetists mind to know that blood is ready and available at a moments notice even in cases where he has not been able to anticipate its necessity.

Let us return to the consideration of the post-operative course of patients who have been treated for hemorrhage. It will be found that the Hb will be lower than it mathematically should be even when more than adequate replacement is made. At the end of 24 hours, 22% of administered Hb has left the circulation, and after 15 days, 35% is missing, according to Stewart¹ and his associates. The explanation for this is not clear. No hemolysis occurs. It is possible that the body reservoirs of Hb have been called upon during the acute emergency but that they recall Hb as soon as the immediate stress is relieved. There is also the possibility that red cells may be used to replace intracellular electrolytes after the emergency is over, since it is known that a diuresis of potassium occurs with massive hemorrhage. Another explanation is that foreign blood, like foreign skin used for grafting, may be destroyed as a foreign body if given in too large amounts. Whatever the explanation, one still has a secondary anaemia to treat in the usual way during the convalescence. If a second crisis occurs, patients do not respond so well to further transfusions, no matter how much blood is given.

Fluid and electrolyte balance must be restored by the administration of 2500-3500 cc of fluid daily for the first few days post-operatively. Only

1000 cc of this should contain Sodium Chloride unless blood chlorides are low due to vomiting and then 1500-2000 cc of normal saline can be given daily till the blood chlorides are normal. While blood is still being given, the daily requirement of Sodium Chloride is supplied by 500 cc of blood. The rest of the daily intake is made up of 5% dextrose in distilled water, with 50-100 g. protein hydrolysate added until oral intake is adequate. The red blood cells play an important part in the regulation of acid-base balance.

Urine output and concentration are watched carefully and signs of uraemia treated early.

Vitamins must be supplied. Vitamin K is given for 3 days post-operatively. Vitamin B and Vitamin C are given in full therapeutic doses while the patient is in hospital. Penicillin is given for 4-6 days post-operatively.

Atelectases is watched for carefully as in all upper abdominal operations, and treated if necessary. Early ambulation helps to guard against this complication as well as to restore tone and morale.

The 3rd case presented by Dr. Peikoff was one for which I gave the anaesthetic. This man was 63, had just had his second massive gastric hemorrhage, the first occurring 11 days before. Hb was 33%, red blood cells were 2,180,000 and hematocrit was 19%. He had a septic chest, and was emaciated. He was semicomatose on the day of the operation. The anaesthetic course was smooth, the anaesthesia duration was 2 hours. 500 cc of blood were given immediately pre-operatively, 1350 cc during operation, and 500 cc immediately post-operatively. Blood transfusions were continued till the third day, and intravenous dextrose with vitamins was given at first and later parenamine. He started getting up on the second day. His cough was troublesome about the fourth day but he managed to clear his chest without serious difficulty. Urinary output was variable but on only one occasion, on the sixth day, went below 600 cc. He was discharged on March 20 with a Hb of 66%. I think there was no question about the fact that this man was dying when he was submitted to surgery. Fortunately there was no permanent tissue damage and he made an excellent recovery.

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Primary Extramedullary Plasmocytoma of the Stomach

Report of a Case

A. T. Gowron, M. Cohen

Tumors consisting of plasma cells occur with relative frequency in the bone marrow; on the other hand it is with relative infrequency that primary extra medullary plasma cell tumors are reported. Reviews of the literature bear this out; Schridde reported the first case in 1904. The following is a report of a patient treated at St. Boniface Hospital in November, 1947.

No. A-1342—Mr. F. F.

A 57-year-old unemployed laborer was first seen at St. Boniface Hospital in May, 1946, complaining of dull epigastric pain with occasional vomiting of 3 years duration. Physical examination at this time was normal and x-rays of chest, gall bladder and gastro-intestinal tract were negative. Stools were negative for occult blood and his hemogram was normal except for a XXX Wassermann reaction. Questioning revealed he had acquired a primary lesion in February, 1946, following exposure. He was treated routinely with bismuth and arsenicals until May, 1947, when he was given 10 malarial chills because of evidence of early *tabes dorsalis*. In August, 1947, he was discharged from the V.D. service with normal serology in his blood and C.S.F. In January of the same year his gastro-intestinal tract had been re x-rayed and found negative.

In November, 1947, he returned to the gastro-enterology clinic complaining of epigastric pain and vomiting with weakness and loss of 15 pounds in weight in the preceding six months. The pain was centred in the epigastrium, not severe but steady, and moderately relieved by vomiting. At times the pain radiated to the left or right costal margin or through to the back. Appetite had remained good and the patient looked well. Two weeks previously he had vomited half a cupful of bright red blood, and had noticed that his stools were dark, but not tarry, on 2 occasions. Review of systems was otherwise negative. Past history and family history were non-contributory.

Physical examination disclosed a greying male in his fifties, cheerful, co-operative and in no distress. The only positive finding was some deep epigastric tenderness. Heart and lungs were clear, B.P., 120/80. Laboratory studies revealed: Hgb., 105%; R.B.C., 5,040,000; W.B.C., 9,500; Polys., 62%; Lymphs., 34%; Eosinophils, 3%; Baso., 1%; Sed. Rate 10mm in 1 hour (Westergren). Urinalysis, S.G., 1.012, otherwise negative. Gastric Analysis up to 12 units free HCl and total of 33. Wassermann (blood), negative. X-rays revealed an infiltrating lesion of the pylorus with 25% gastric

residue after 4 hours. The patient was subsequently transferred to surgery.

At operation the stomach was found to be mobile with a fairly large mass on the greater curvature near the pylorus, another firm mass at the pylorus blending up on the lesser curvature. The gastro-hepatic and greater omenta contained many firm glands. Grossly the liver appeared normal. Two-thirds of the stomach was resected with most of the involved glands and a retro-colic gastro-jejunal anastomosis was done. The pancreas was adherent to the posterior wall of the stomach in several places and was injured in its removal. Some glands remained high up on the lesser curvature and in the porta hepatis.

The patient had a rather stormy post-operative course in that he developed a left subphrenic abscess which was drained but continued to discharge. Barium studies revealed a jejunal fistula. However, this eventually closed spontaneously and the patient was discharged 82 days after operation.

Pathologist's Report: 2/3 Gastric Resection

Gross: 2 circular lesions were present, the large one 4 cms across and on the greater curvature; the second 3 cms in diameter and at the pyloric end. Thickness of the lesions varied from 1.5 to 2 cms and cut surface is composed of pale, moist, homogeneous vary colored tissue. In some areas this appearance was confined to the submucosa, while in others it had replaced all the layers completely. Numerous hard marble sized nodes were present on both curvatures and in the resected omentum. Cut surface of these nodes presented the same vary homogeneous appearance.

Micro: The gastric mucosa shows spotty atrophy and in places is completely absent. In these areas the gastric glands have been replaced by a dense mass of cells which seemed to predominate in the submucosa but had invaded all layers—in places replacing the muscle and connective tissue stroma. These cells were predominantly plasma cells showing the characteristic cart wheel nucleus eccentrically placed, and a few showed perinuclear pallor. In some areas these constitute 90% or more of the visible cellular elements; the remainder are mostly mature lymphocytes. This is not a carcinoma as was presumed from the gross, but a plasma cell tumor or plasmocytoma apparently malignant, as lymph nodes are invaded, and show the same appearance—being completely stuffed and replaced by plasma cells.

This patient was re-checked twice since his discharge. His last review in May, 1949 (18 months post-operative) revealed: Hgb., 89%; R.B.C., 4,700,000; W.B.C., 8,400; Polys., 82%; Lymphs., 17%; Eosin., 1%; Urinalysis, negative; Blood Proteins, Total, 7.1 gms.%; Alb., 4.25 gms.%. Glob., 3.85 gms.%; Sed. Rate, 20mm in 1 hour (Westergren); Bence Jones Protein, negative.

X-rays of skull, pelvis and long bones, negative.
Bone Marrow, normal.

Barium Series, normal with a properly functioning stoma.

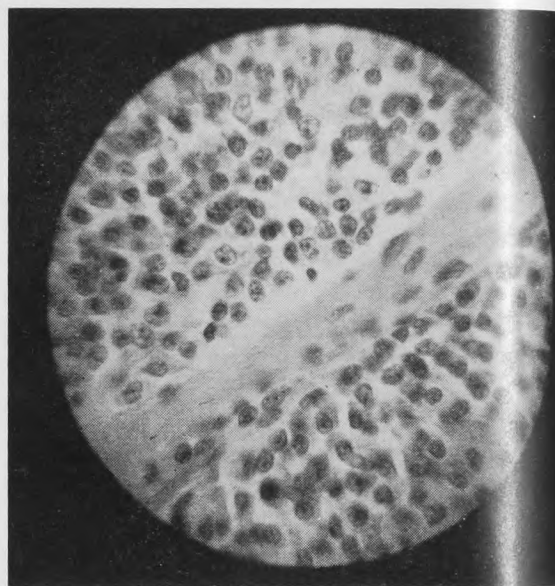
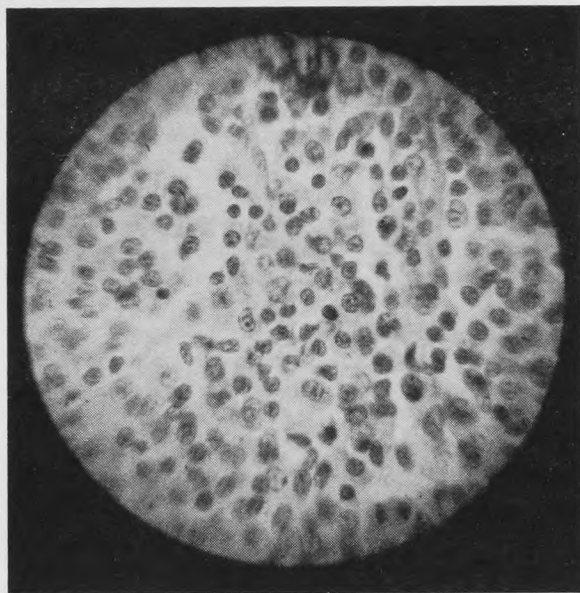
Weight, 135 pounds.

Discussion

Following Schridde's report in 1904 other reports on extramedullary plasmocytoma began to appear, and in 1942 Hellwig published his excellent review on the subject summarizing 128 cases and bringing them into English print. Of these 64 were located in the upper respiratory tract, 47 in the conjunctiva, 4 in lymph nodes and 13 in other organs (pleura, mediastinum, spermatic cord, thyroid gland, ovary, intestines, kidney, skin and mouth). No case of primary plasma cell tumor of the stomach had been reported, but Brown and Liber cited the report by Vasiliu and Popa of a case with multiple ulcerated nodules in the mucosa of the stomach and intestines. In 1946 Schwander, Estes and Cooper and also Couret of New Orleans,

wig that the gross characters of the tumor are often of more use in proper evaluation of its true nature. In the case presented here the widespread involvement of the regional nodes can leave little doubt as to whether the primary growth was benign or malignant. However, it cannot be denied that the recognition of a plasmoma rests finally on the microscopic identification of plasma cells as the characteristic elements of the tumor. To this end (although there was general agreement among the pathologists locally) tissues and sections were forwarded to the Pathology Section of the American Cancer Institute. Their reports were confirmatory—that the plasma cells were actually tumor cells and constituted over 90% of the cells in most areas with the remaining cells being mostly lymphocytes.

Although the origin of the plasma cell is disputed, Michel's review is a fine source of information. It is to Ramon-y-Cajal that we owe the first accurate description of this cell which in 1890 he called the "cyanophil cell." He encountered it in



each reported a case originating in the stomach. In addition another 5 cases in sites other than the stomach were published independently. Thus 135 cases have been reviewed and in only 3 instances has this disease been found involving the stomach.

As Hellwig has pointed out in his review it is often difficult to make a positive differentiation between actively proliferating chronic inflammatory cells and plasma cell tumors—for they do indeed have a histologic resemblance. This is particularly true of non-metastasizing plasmomata where the granulomatous appearance is at times very marked. The histologic method therefore is highly unsatisfactory and not to be relied on too heavily. It has been stressed by Couret and Hell-

syphilitic condyloma. In 1891 Unna saw the same cell in lupous lesions and termed it "plasma cells." In 1895 Marschalko made extensive observations on normal, pathologic and experimental material, and he put forth four criteria as essential for the cytologic diagnosis of plasma cells. These are (1) abundant cytoplasm of round, oval or polygonal form without specific granulooplasm; (2) eccentric position of the nucleus; (3) paranuclear pallor; (4) the arrangement of relatively large chromatin masses within the nucleus so as to produce the so-called "cartwheel nucleus." This cartwheel or clockface appearance is extremely well marked in the sections of this case. As mentioned, the paranuclear pallor was noted in some areas; no Russell

bodies were seen in our sections but unfortunately staining according to Pappenheim's technic was not done as the tissue had not been fixed in alcohol. The presence of lymphocytes may or may not confirm the hypothesis that plasma cells are derived from them. Indeed it is their occasional abundance in many plasmomata that leads many to consider them as a form of lymphoma or lymphosarcoma.

In 1922 Maximow showed that in explants of lymphoid tissue plasma cells would develop in the course of 2 days. On this basis he contended that plasma cells are derived from emigrated blood lymphocytes as well as pre-existent tissue lymphocytes. He stated that, wherever an aggregation of lymphocytes occurs, there likewise may be met a varying proportion of plasma cells with transitional stages from lymphocytes. In the interstitial tissue of the glands, the tonsils, the liver and kidney, in the reticulum of lymph nodes and in the bone marrow, plasma cells have been shown to be normally present. In 1945 Lowenhaupt, by studying cases of multiple myeloma, concluded that plasma cells arise from tissue histiocytes, spleen and lymph nodes. However, until universal agreement is reached on this point it might be better to use Masson's terminology "plasmocytic sarcoma" to differentiate it from lymphoblastic sarcoma. Sections of this case subjected to silver impregnation showed a delicate reticulum present.

No proven function has been ascribed to plasma cells, but it has been suggested from time to time that they are phagocytic in nature and Schaffer contended from their frequency wherever nuclei were being destroyed, that their formation is due to local absorption of chromatin material and they help remove cellular metabolic products.

Plasma cells are usually present to some degree in chronic pyogenic and granulomatous lesions. Tuberculosis, syphilis, encephalitis, trachoma and subacute gonococcal infection are the most important conditions accompanied with an

increase in plasma cells. In the above case the Wassermann had been positive for approximately 6 to 8 months during his illness. The etiologic relationship is perhaps open to question. However, this man actually antedated his gastric complaints by 3 years, and these tumors may have a duration of ten years or more before metastasizing. Then, too, the lymph node involvement seems to leave little doubt as to the malignancy of the lesion. As pointed out by Hellwig and others, a minimum of 5 years must pass before one can consider the possibility of a cure.

Summary

A case of primary extra-medullary plasma-cell tumor arising in the stomach is presented and some of the aspect of this type of neoplasm are discussed. Plasma-cell tumors may arise in almost any situation in the body and may behave clinically as simple benign growths or as a neoplasms of the most malignant type. To regard their prognosis in the extra-medullary foci as the same as that of multiple myeloma, is as unjustified as the opposite view that these tumors are as a rule a non-cancerous process. True, they usually begin as benign mucous membrane lesions, but observations over long periods show that ultimately they metastasize and often with no histologic change. It is for this reason that the gross appearance of any resected specimen has often greater clinical import than the microscopic diagnosis. Therapeutically one may feel safe in concluding that as long as the plasma cell tumor is localized and confined to non osseous tissues, a clinical cure may be effected by surgical removal or irradiation or both.

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ANAESTHESIOLOGY

Edited by R. G. Whitehead, M.D.

Abstract

Pentothal-curare Mixture with Endotracheal Nitrous Oxide and Oxygen in Infants

Christine Furman Webster and Frederick H. Van Bergen, Bulletin of the University of Minnesota Hospitals and Minnesota Medical Foundation, xx:525-, May 6, 1949

These authors point out that none of the general anaesthetics has been entirely satisfactory for babies. Twenty-seven operations were conducted using pentothal-curare-nitrous oxide and the results were very encouraging.

Comparison of anaesthetic agents is made, and

it is found that an infant anaesthetized by Baird's solution and Nitrous Oxide, if intubated and augmented respiration carried out when necessary, will have minimal physiological disturbances. The oxygen supply and carbon dioxide clearance are good, dead space is decreased, vomiting is slight, minimal alkalosis occurs, recovery is prompt, long operations and those requiring maximum depth of anaesthesia and relaxation can be carried out, and induction is rapid and easy.

Ether, in contrast, causes marked vomiting, acidosis, slow recovery, slow difficult induction,

increased respiratory rate, poor carbon dioxide clearance and increased dead space. Intubation decreases the dead space, but augmented respiration is dangerous with ether. Cyclopropane compares favorably with Baird's and Nitrous Oxide, but there is more vomiting, minimal acidosis, relaxation is only fair, and bradycardia and arrhythmias occur in some cases. Intubation is necessary here also, to cut down dead space.

The main disadvantage of the pentothal-curare anaesthetic is the necessity for a cut-down in infants. Also, a trained anaesthetist is required. Any trauma resulting from the intubation would also be a factor in the use of other agents, for only very short cases should be conducted with a mask, having a tube ready for immediate use.

Pentothal is a potent hypnotic but lacks analgesic power and does not produce muscular relaxation, nor does it affect the vomiting centre, the liver, kidneys, heart, total blood carbon dioxide, bleeding and coagulation time, or the white blood cells. It increases the laryngeal reflex, constricts the bronchioles, dilates the spleen, depresses the smooth muscle of blood vessels and is prone to produce a fall in blood pressure. Pentothal moderately decreases minute respiratory volume and intracranial pressure. Destruction occurs largely in the liver, but there is a cumulative action since one of its degradation products is pentobarbital.

Curare produces muscular relaxation, probably by raising the threshold to acetylcholine and depressing the myoneural junction. Hemodynamic disturbance is minimal other than a mild hyperglycemia. The diaphragm is the last muscle to be affected. It produces no appreciable change in smooth or cardiac muscles. Curare is partially destroyed by the liver and is excreted by the kidneys.

Nitrous oxide is an analgesic at a concentration of forty per cent or more, is not altered within the body and has little or no physiological effect if anoxia is avoided.

Procedure: Dehydration is corrected pre-operatively by a solution of 1/3 saline and 2/3 5% glucose in distilled water. 5% Butler's solution may also be used. A cut-down is done using polythene tubing, and fluids are dripping when the baby arrives in the operating room. Food and fluids are withheld for at least four hours. Small amounts of morphine and scopolamine are given one hour pre-operatively, the younger ones receiving only scopolamine. In the case of head injuries, codeine is substituted for morphine. One-half c.c. doses of Baird's solution are administered intravenously every three minutes until the patient is asleep. Then 100% oxygen is started by mask. Injection of Baird's is continued at the same rate till breathing is almost entirely diaphragmatic. Intubation is then carried out and assisted respira-

tion initiated using a flow of 500 each of nitrous oxide and oxygen in a semi-closed system with soda lime.

Very little additional Baird's will be needed, and it is discontinued well before the termination of surgery. Oxygen and helium are used to hyperventilate the lungs at the end of the operation, and the tube is removed when reflexes return. Mouth, pharynx and trachea are suctioned before removing the tube.

In this series ages varied from five weeks to thirty-four months. The largest amount of Baird's solution used was 15 c.c. and the operations varied from fifteen minutes to four hours and fifty minutes.

Abstract

The Effect of Various Surgical Positions on Vital Capacity

Evely H. Case and John A. Stiles, Anesthesiology, 7: 29-31, January, 1946

Vital capacity was measured in this study in thirteen operative positions using twenty-six ambulatory subjects ranging in age from 22 to 78 years. The following readings were obtained after keeping the subject for three minutes in each position:

	85%	90%	95%	100%
Sitting				
Reverse Trendelenburg				
Dorsal				
Prone With Support				
Left Lateral				
Prone Without Support				
Right Lateral				
Gall Bladder Rest				
Jack Knife				
Right Kidney				
Trendelenburg				
Left Kidney				
Lithotomy				

If a decrease of vital capacity is noted in a matter of three minutes in these positions, it may be assumed that maintenance of these positions over extended periods must produce greater changes in the same direction. With an anaesthetized patient, voluntary effort is lost and even more profound changes in exchange of gases could be expected.

This study shows that the most unfavorable positions for patients on the operating table, as far as interference with vital capacity is concerned, are Trendelenburg, lithotomy and those in which rests are used. From this we conclude that patients operated in these positions should remain under anaesthesia the least amount of time commensurate with good surgery.

M. R. Bennett, M.D.

CANCER



Edited by D. W. Penner, M.D.

Carcinoma of the Stomach
A Statistical Summary*

George R. Burland, M.D.†

I. Incidence

Cancer, next to cardiovascular disease, is the commonest cause of death in this country. There are approximately 150,000 cancer deaths annually in the United States and of these, one-third to one-sixth are due to cancer of the stomach. Livingston and Pack¹ in 1939, stated that approximately one-third of malignant tumors are located within the stomach and that there were more deaths from cancer of the stomach than from all malignant tumors of lip, tongue, cheek, tonsil, pharynx, larynx, salivary glands, thyroid, male and female breasts, ovaries, uterine cervix and corpus uteri combined. In Lummerichs' series of 10,566 autopsies (1936)² among women between 40 and 70 years of age, one in twenty deaths was due to gastric cancer and in men, one in twelve. However, in recent years the proportion of neoplasms in other sites has increased and the foregoing figures are higher than those of the present time but they serve to emphasize the high incidence.

Table 1	
Incidence of Gastric Carcinoma	
Percent of all Malignant Tumors	25%
Sex Incidence	70% males
Age Incidence	50 - 70
	average 60

Levin³ estimated that of every one thousand persons examined at the age of 65, one case of carcinoma of the gastro-intestinal tract could be found.

The incidence of gastric cancer varies in different countries. For example, in Norway, a fish eating country, 74% of the total cancer death rate is due to cancer of the stomach (Ewing)⁴.

Males are affected two or three times more commonly than females. The majority are found between the ages of 50 and 70 with the average age of onset being about 60 years³. About 5% of carcinomas of the stomach occur under the age of 40⁵.

II. THE DISTRIBUTION

The distribution within the stomach of carcinoma is given in Table 2. In 837 cases analyzed by Oppolzer⁶ 54% of neoplasms were located in the pre-pyloric region, 30% in the pars media, including the lesser curvature, 7% at the cardia, 2% on

the greater curvature, 7% being of the linitis plastica type. A lesion at the pylorus has about a 65% chance of being cancer and one on the greater curvature is almost invariably malignant.

Table 2			
Distribution of Carcinoma of the Stomach		Probability of Carcinoma in Lesions in the Following Sites ¹²	
Pre-Pyloric	54%	Pyloric	65%
Lesser Curve	30%	Lesser Curve	10%
(Pars Media)		Greater Curve	100%
Greater Curve	2%	Ant. and Post. Wall	20%
Cardia	7%	Pyloric Ring	10%
Linitis Plastica	7%		

The great preponderance of malignant tumors of the greater curvature was emphasized by Mathews⁶ who in 1935 collected only 24 definite benign ulcers at this site in the entire medical literature.

III. Types of Gastric Tumors—Benign and Malignant

The vast majority of tumors of the stomach are carcinomas. About 2% are sarcomas of which about one-half are lymphosarcomas, the remainder being fibrosarcomas, myosarcomas, and angiosarcomas. The incidence of benign tumors depends upon the diligence of the search at autopsy and ranges between the 4% of Balfour⁷ and the 23% of Stewart⁸. The commonest benign tumors are leiomyomas and polyps.

Table 3	
Relative Frequency of Gastric Tumors	
Carcinoma	75 - 94%
Sarcoma	2%
Benign Tumors	4 - 23%

IV. Size of Carcinoma

In a series of 4,000 gastric cancers studied at the Mayo Clinic only 8% of resected cancers were smaller than 2.5 cms⁹. Thus while a lesion under 2.5 cms in diameter is most likely benign, this fact is by no means diagnostic.

V. Symptoms

Progressive dyspepsia and a general decline is present in about 60% of the patients. Long standing indigestion in 25% and ulcer symptoms (food ease and hunger pains) in 30%. Irregular symptoms such as progressive decline without distress, gastric hemorrhage, vomiting from acute pyloric obstruction and atypical attacks occur in about 10% of patients¹⁰. Pain occurred in 93%, jaundice was present in 23%, and hematemesis occurred in 9%, of the 444 cases of Abrahamson and Hinton¹¹. It is interesting to note that in the Mayo Clinic

*From Dept. of Pathology, Winnipeg General Hospital.
†Fellow in Surgery, Winnipeg General Hospital.

report 80% of patients with gastric cancer improved on an ulcer regime¹². This would seem to be an important factor in any delay of treatment.

The average duration of symptoms before diagnosis in Lahey's operable group was 8.1 months, while in the inoperable group it was 8.5 months¹³. Both Lahey and Anschutz¹⁴ felt that duration of symptoms played no perceptible role in the possibility of removal of the tumor and cure.

Ewing⁴ divides symptoms and signs into early and late. Early symptoms and signs being gastric distress after eating, loss of flesh, regurgitation, occult blood in stomach washings or stools and radiographic changes.

Table 4
Symptoms of Gastric Carcinoma

Pain	93%
Longstanding Indigestion	25%
Ulcer Symptoms	30%
Irregular Symptoms	10%
Jaundice	23%
Hematemesis	9%
Improve on an Ulcer Regime	80%

It is pertinent to note here that a significant number of gastric carcinomas are diagnosed erroneously when first seen. Of the 277 cases of lesions of Allen¹⁵ which were thought to be benign, 14% were eventually carcinomas. Similarly of 146 gastric ulcers treated medically in the series of Judd and Priestly¹⁶ 10% were subsequently proven to be carcinoma.

VI. Laboratory Findings

In a gastric analysis of 1,315 patients over the age of 50, Niazi¹⁷ found that 85% of 50 patients with gastric carcinoma had achlorhydria after histamine and 5% had hypochlorhydria (under 30 units); in the 906 cases without neoplasm 36% were achlorhydric and 23% hypochlorhydric; and in the 337 patients with extra-gastric neoplasms, 30% showed achlorhydria and 25% hypochlorhydria. In this group 13 patients had gastric polyps and 100% of these cases were achlorhydric.

Hypoproteinemia occurs in 59% of cases and anemia in 70%. Ariel did not think that ingestion of deficient diets and chronic blood loss were sufficient explanation for the high incidence noted¹⁸. In 16% of cases blood was present in the gastric contents¹¹.

The roentgenographic error in diagnosing malignant lesions of the stomach is as low as 10%⁵. Gastroscopic error is about 17%¹⁹.

Table 5
Laboratory Findings

Achlorhydria	85%
Hypoproteinemia	59%
Anemia	70%
Blood in Gastric Contents	16%
Roentgen Accuracy	90%
Gastroscopic Accuracy	85%

VII. The Incidence Associated With Pernicious Anemia and Gastric Polyposis

The incidence of carcinoma of the stomach in pernicious anemia varies in different series from 0.6% to 12% at autopsy and from 1.8% to 8% in living patients with pernicious anemia. There is a marked increase also in the incidence of benign gastric polyps associated with pernicious anemia.

Table 6
Pernicious Anemia and Carcinoma of the Stomach

Author	Number of Cases	Incidence of Carcinoma	Incidence of Polyps
Autopsy Studies:			
Brown ²⁰	151	0.6%	8%
Kaplan ²¹	293	12%	—
Clinical Studies:			
Jenner ²²	181	4%	—
Rigler ²³	211	8%	—
Wilkinson ²⁵	1532	1.8%	—

Jenner²² calculated the incidence of carcinoma of the stomach in patients with pernicious anemia to be twelve times greater than that of the rest of the population at the same age.

Wilkinson²⁵ in a recent report implies that there is some relationship and that the only obvious etiological factor common to both is the achylia gastrica usually associated with chronic gastritis. His figures suggest the necessity for regular and frequent examination of all patients with pernicious anemia. Jennings²⁶ suggests that from five years after diagnosis there is little or no increased incidence.

In Pearls 37 cases of gastric polyposis, 50% showed evidence of malignant change²⁴. In other series the incidence of carcinoma in gastric polyposis is found to be around 25%.

The relationship of chronic gastric ulcer to carcinoma is controversial and a discussion is beyond the scope of this paper. Suffice it to say that most authors believe that at least some carcinomas arise in pre-existing benign ulcers. The same is true of chronic gastritis.

VIII. Spread

The spread of carcinoma of the stomach is given in Table 7.

Table 7
Spread of Carcinoma of the Stomach

Local:	
In stomach. To liver, diaphragm, transverse colon, pancreas, gastro-splenic ligament to hilus of spleen, to duodenum, esophagus and omentum:	
Lymph Nodes:	
Involved in surgical specimens	75%
Involved at autopsy	90%
Supra-clavicular at examination	4%
Metastatic:	
Distant at Autopsy:	
Liver	70%
Peritoneum, omentum and mesentery	43%
Lungs and pleura	33%
Bones	11%
Ovaries	14%
Supraclavicular and Cervical Nodes	8%
Pharynx	4%
Thyroid	3%
Umbilicus and Subcutaneous tissues	2%

It is interesting to note that in 25% of Castleman's²⁵ surgically resected cases, there was local spread to the duodenum (pyloric carcinomas). The figures of Collier²⁶ are similar. These figures would seem to be much higher than seen in surgically resected specimens at this hospital.

Lymph nodes are involved in about 75% of surgical specimens²⁶. In 210 cases observed by Lange³, 4% had involvement of the left supraclavicular nodes. In autopsies on 143 consecutive cases of untreated gastric carcinoma, 90% showed lymph node metastases, other metastatic lesions being found in the liver (70%), in the peritoneum, omentum and mesentery (43%), in the lungs and pleura (33%), in bones (11%) and ovaries (14%)²⁷. Most ovarian metastases are bilateral¹³.

IX. Operability

That a palpable mass is not a contra-indication to surgical treatment is well shown by Lahey¹³ who found that 28% of his patients with a palpable mass were resectable. Forty-five per cent of his inoperable cases had a palpable mass. Eighteen per cent of Stout's 143 cases²⁷ were theoretically operable at autopsy, that is the cancer was limited to the immediate vicinity of the stomach. The 1907-1936 group in table 8 are from the study of 10,890 cases of carcinoma of the stomach seen at the Mayo Clinic in this period¹².

Table 8			
Operability of Gastric Cancer			
Operable with palpable tumor			28%
Operable at autopsy			18%
Operability at time of diagnosis:	1907-1936	1936-1945	
Inoperable	43%	24%	
Exploration only	22%	15%	
Palliative procedure	10%	9%	
Resectable	25%	52%	

However, during the past few years the operability and hence the curability has been taking a gradual change for the better and in the period

1936 to 1945 at the University of Minnesota Hospitals 76% of 586 patients were operable, 52% being resectable and 9% having some palliative procedure²⁸. Reports from other centres give even higher figures. It must be remembered, however, that these series are from large centres to which patients are referred and cases are, therefore, to some extent selected. The actual overall operability statistics are probably slightly lower.

X. Macroscopic Grading

The classification of Borrmann, which has been widely adapted, is given in Table 9. The diffuse infiltrating type infiltrates the stomach wall for variable distances without definite limitations of its margins and includes the linitis plastica type. The end results of operation in types 3 and 4 are unfavorable²⁹.

Table 9	
Macroscopic Grading of Carcinoma of Stomach	
1. Polypoid	2.9%
2. Non-infiltrating carcinomatous ulcer including carcinoma in situ	17.6%
3. Infiltrating carcinomatous ulcer	16.3%
4. Diffuse infiltrating type	63.2%

XI. Prognosis of Carcinoma of the Stomach

The general prognosis with the operative mortality is given in Table 10. The literature is large and an attempt is made to present representative statistics.

The trend towards higher operability and survival rates with lower operative mortality rates and the recognition of the value of palliative surgery has been steady and progressive during the past decade. However, the overall prognosis is still gloomy. Many patients still die without diagnosis, others reach hospital in terminal stages and others when explored cannot be resected. In 1939 Livingston and Pack estimated that the salvage rate in patients with gastric cancer was less

Table 10
Prognosis of Carcinoma of the Stomach
(References for these statistics are to be found in text)

Without treatment, after diagnosis					Average duration of life— 6 months to 1 year			
With operation	Palliative				Operative Mortality	Survival		
						1 year	2 years	
		Exploratory.....				4%	10%	2%
		Gastro-enterostomy.....				12%	23%	6%
	Gastric Resection.....			20%	44%	21%		
	Curative	Operative Mortality				5 Year Survivals		
		Partial		Total		Partial	Total	
1890-1939		1936-45	to 1943	1943-47				
29% 3%-50%		15% Minus	37%	0-28% Av. 8%	20-25%	5%		

than 2%¹. This figure has been raised, but not too significantly. At the University of Minnesota Hospitals 6.6% of the total number of patients (328) seen between 1936 and 1941 survived five years²⁸. The average survival expectation of a total of 1,405 cases of cancer of the stomach was 27.4% of the normal expectation in a recent report from England⁵.

The average length of survival without operation is six months to one year after diagnosis, giving an average natural history of approximately twenty months. In over 90%, definite symptoms have been present for six months or over at the time of diagnosis³⁰, usually eight to twelve months.

Twenty-three per cent of patients having palliative gastro-enterostomy (mortality 12%) live one year and 6% live two years³¹. The average length of life following this procedure is six months¹⁴, not much difference from those having no treatment. Forty-four per cent of patients having palliative gastric resection live one year, 21% live two years³¹. Palliation achieved by resection averages from 15 months³² to 22 months²⁸. Palliative surgery gives the only chance in many patients of relieving distressing symptoms and prolonging life.

The operative mortality in the 14,000 cases of partial gastrectomy collected by Pack and Livingston¹ in 1939 averaged 29%. The range was from 3 to 50%, in various clinics. The present mortality is under 15%²⁸ and many centres report a mortality of under 5%³². In the 303 total gastrectomies collected by Pack and McNeer in 1943³³ the operative mortality was 37% and 5% survived five years. Present day mortality ranged from 0 to 28% in the group of small series (Horsely, Sweet, Longmere, Jones and Kehm, Moreland and Halligan et al) collected by Halligan in 1949, the mortality of the total of 52 cases being 8%³⁴.

The five-year survival rate following resection reported by many clinics is from 20-25%.

Many factors influence the prognosis. In general the older the patient the better the chance of survival. Those without lymph node metastases at operation have a much greater chance for a five-year cure (up to 45%) than those with node involvement (17%)¹². In the superficial infiltrating type there are about 50% five-year survivals, while the outlook for the linitis plastica type is exceedingly poor²⁷.

XII. Radiation and Gastric Carcinoma

About 90% of carcinomas of the stomach are radio-resistant. Although palliation has been occasionally obtained, thus far (1941) no patient with gastric carcinoma without surgical excision has survived for three years under any form of irradiation treatment (Livingston and Pack 1941)¹⁰.

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MEDICINE

Treatment of Neurosyphilis

T. A. Pincock, M.D.

It has been conservatively estimated that 10% of untreated cases of syphilis develop neurosyphilis. Poor and inadequate treatment in the early stages of the disease is said to be worse than no treatment and to lead to an increase in the incidence of neurosyphilis. With standard treatment the incidence of neurosyphilis is reduced to a very small figure and with adequate treatment, which implies treatment until a positive spinal fluid is reversed, dementia paralytica and tabes dorsalis should be eliminated.

In the early nineteen twenties, only 25% of cases of neurosyphilis entering the psychopathic hospital were returned to the community with the disease arrested at a stage where the patient was socially acceptable, or economically efficient. The remaining 75% were hospitalized for continued treatment at Brandon or Selkirk, where the majority remained until death.

In 1932, we made a survey of sixty consecutive cases admitted in the previous ten-year period. Of these sixty cases, the records revealed that only 15 cases or 25% had been discovered before admission to hospital, and of these 15 cases, only two had received what, even at that time, could be considered adequate treatment. Some had received Mercury inunction only, and others medicinal baths or potassium iodide or a single series of six injections of "606."

The incidence of admissions of late neurosyphilis to psychiatric hospitals in Canada has fallen off somewhat in recent years. This is due to several factors including:

- (1) Early discovery of syphilis through more frequent use of routine blood Wassermann tests in some hospitals and private practice.
- (2) More intensive and prolonged treatment in General Hospital and private practice.
- (3) Availability of Anti-luetic drugs, independent of patients ability to pay for same.
- (4) Improvement of the drugs on the market.
- (5) Introduction of penicillin in treatment of early syphilis.
- (6) Better follow-up care.

It has been long known to us that spinal puncture should be performed in every patient with syphilis, and before a patient is discharged from observation in all cases of treated primary or secondary syphilis. Merritt states that if the Spinal Fluid is entirely normal two or more years after the primary infection, there is little likelihood of the patient's ever developing serious or disabling symptoms from the infection.

The figures issued from Ottawa indicate that first admissions to mental hospitals in Canada due to neurosyphilis during the years 1932 to 1940, remained fairly constant with the exception of the year 1934, which showed an exceptionally high rate for some unexplained reason. In the first 6 years of the present decade the decline in admissions due to late neurosyphilis has been steady.

Canadian Psychiatric Hospitals

Year	Total First Admissions	Cases of Neurosyphilis
1932	5774	5.6%
1933	5858	6.1%
1934	6403	7.5%
1935	6932	5.9%
1936	7594	5.4%
1937	7519	5.7%
1938	7612	5.6%
1939	7533	5.9%
1940	6987	5.4%
1941	7064	4.7%
1942	7247	5.2%
1943	7354	5.1%
1944	7591	4.8%
1945	7664	4.3%
1946	8437	3.9%

A classification of neurosyphilis which was adopted in Military practice in the United States Army, is as follows:

- (1) Meningeal
 - (a) Symptomatic (uncommon).
 - (b) Asymptomatic; no apparent symptoms; positive spinal fluid—always present before parenchymatous involvement.
- (2) Vascular syphilis.
- (3) Parenchymatous.
 - (a) Tabes dorsalis.
 - (b) Dementia Paralytica.
 - (c) Primary Optic Atrophy.

Merritt, who uses this classification, points out that it emphasizes the pathological process, which is the cause of the symptoms, and that it must be remembered that none of these three categories is mutually exclusive.

The drugs used in neurosyphilis are the same as those used for syphilis elsewhere in the body, viz., the trivalent arsenicals such as arsphenamine, neoarsphenamine, and mapharsan, in combination with heavy metal, usually bismuth. In addition, however, tryparsamide, penicillin and fever therapy have their advocates.

Preliminary reports indicate that penicillin has a favorable effect upon the less serious forms of neurosyphilis, i.e., the meningeal or vascular types, but there is considerable disagreement as to

whether penicillin is effective in arresting the degenerative process in the cerebral cortex of a case of paresis; e.g., O'Leary states that he has not seen a frank remission of symptoms in Dementia Paralytica when treated with penicillin alone. Other workers differ. Stokes has claimed good results with penicillin alone in the disease, yet he believes that penicillin is still outranked by malaria because the follow-up periods are too short to substantiate claims of arrested disease. Eagle has demonstrated that the treponemoidal effect of penicillin in vitro, is enhanced by elevation of temperature. Most investigators have employed a total dose of 4-10 million units within a period of 10-30 days.

Until it has been proven effective, we prefer to combine penicillin with malarial therapy and tryparsamide, mapharsen and bismuth. The routine which we follow at the Psychopathic Hospital is:

(1) Careful physical examination with special reference to the cardiovascular, renal, pulmonary and nervous systems.

Urinalysis, Haemoglobin and red cell count, X-ray of lungs and heart. E.K.G. if indicated and the patient co-operative.

It is necessary to proceed cautiously with penicillin where aortitis is suspected.

2. Penicillin.

(3) Inoculation of 5 c.c. of malarial infested blood by direct transfer if convenient. Blood should be citrated if transportation is necessary, and also iced.

(a) Record temperature, pulse and respiratory rates every four hours until first chill, every hour or half-hour during the rise of fever, and every four hours between chills.

(b) Give sponge for fever over 105° F.

(c) Make blood pressure recordings once daily during the height of the fever and also after fever subsides.

(d) Use Ephedrine Sulphate ½-1 gr. every 6 hours, if systolic pressure drops below 100 mm of mercury.

(e) Examine urine every 2-3 days.

(f) Determine haemoglobin and red cell count at least once a week.

(g) Watch the spleen and liver for enlargement.

(h) Force fluids, milk, cream, fruit juices, and encourage patient to eat between chills and to be ambulant.

(i) Secure 10-12 rises of temperature above 102° F.

(j) Terminate fever with Quinine grs. X t.i.d. for 3 days, and after a week's interval repeat the same dosage for three days.

Indications for termination of the fever are jaundice, rapidly falling R.B.C. count and haemoglobin, persistent low B.P. below 90 systolic.

Outline treatment following Fever and Penicillin treatment as per ward instructions.

General Paresis

1. Mapharsen and Bismuth	8 weeks
2. Tryparsamide	15 weeks
3. Tryparsamide and Bismuth	10 weeks
Spinal Fluid examination	
4. Tryparsamide	15 weeks
5. Tryparsamide and Bismuth	10 weeks

Dosage

Mapharsen—

Male—First Dose03 gms.
Subsequent06 gms.
Female—First Dose02 gms.
Subsequent04 gms.

Tryparsamide—

First Dose	1 gm.
Second Dose	2 gms.
Third Dose	3 gms.

Bismuth—

2 cc. intramuscularly

Patient must have eyes examined before starting Tryparsamide series. Visual fields repeatedly examined, if any blurring.

We have admitted 51 cases of late neurosyphilis to the Winnipeg Psychopathic Hospital in the years 1943-1947. Percentage of 1st Admissions:

1943	3.03%
1944	1.69%
1945	4.1 %
1946	1.1 %
1947	2.7 %

Average annual 2.72% of total first admissions.

Disposal of cases (51); 25 cases were paroled to relatives, to their own control or placed in other than custodial environment. 24 were transferred to Brandon or Selkirk Mental Hospitals for continued care and of these 10 were subsequently paroled, making a total of 35 (68.6%) of the 51 cases who were released from custodial care. There were three deaths.

It will be noted that I have said little about the treatment of forms of neurosyphilis other than the late parenchymatous.

In Meningeal Syphilis, the treatment is directed to relief of symptoms and prevention of the more serious and disabling forms of the disease. Treatment in the form of Mapharsen and Bismuth continued for a year or one and a half years is indicated. If the Cerebro-spinal fluid is still abnormal, Malaria and tryparsamide are indicated.

In Vascular Neurosyphilis, the treatment is similar to meningeal neurosyphilis, if the symptoms develop early in the disease.

If the signs and symptoms occur many years after the original infection with a complication of arteriosclerosis as is often the case, the treatment is modified. The most that can be expected from

treatment is prevention of further cerebral accidents. More reliance is placed upon heavy metals—weekly injections of bismuth for 20 weeks, followed by mapharsen for a similar period of injections and alternating Bismuth and mapharsen in courses until one year or 1½ years-2 years.

Tabes Dorsalis—Improvement can be expected

in a large percentage of cases. The disease can be arrested at the point discovered. Pains, gastric crises may persist for years. Trivalent arsenicals and bismuth. Fever therapy is not as valuable here as in Dementia Paralytica, but can be used where tryparsamide is contra-indicated by presence of optic atrophy.

LABORATORY NOTES

Reported by Miriam Wiseman, B.Sc., M.T. (A.S.C.P.), R.T. (Can.)

Report on Western Convention of the Canadian Society of Laboratory Technicians

Henry Daneleyko

The Canadian Society of Laboratory Technicians held their annual Western convention at Vancouver this year and I had the very good fortune of being able to attend. The convention was extremely interesting and the entire trip most enjoyable and one to be remembered. As this was my first trip to the west coast I wanted to see as much as I could, so going west I travelled via C.N.R. and on the return via C.P.R. There is not much that I can add to all that has already been written about the majestic beauty of our Canadian Rockies . . . suffice to say no adjective is adequate to truly describe these wonders of nature. Their grandeur is awe-inspiring and the water-falls, the Bridal Veil to mention but one, are breath-taking . . . truly an answer to any camera enthusiast's dream. Mount Robson, the highest peak in the Canadian Rockies along the C.N.R. route is almost continuously shrouded in a cloud and many who travelled several times to the Coast have never been able to view its snow clad top, but I can boast that on the day I saw it the clouds had dispersed and with the sun shining brightly it looked like a proud queen wearing a diamond studded diadem.

I left Winnipeg on the morning of May 11th and arrived in Vancouver on Friday, May 13th. I went directly to Hotel Vancouver where my reservations had been made and which very conveniently is directly opposite the Medical Dental Building where most of the convention sessions were to be held. The first thing I did then was to register and at 10 o'clock attended a film on Bone Marrow. In the afternoon we had two lectures. The first was on "The Cytological Examination of Malignant Cells in Various Body Fluids," by H. E. Taylor, M.D., M.R.C.P. (Edin.), director of laboratories at the Shaughnessy Hospital. The second lecture was given by A. W. Bagnall, B.A., M.D., M.R.C.P. (Lond.), F.R.C.P. (Can.), chairman of the committee for Arthritis and Rheumatism (B.C. Medical Association), who spoke on "The Laboratory Aspects of Rheumatic Diseases." At

6.30 p.m. we were entertained at an informal reception and banquet held in the Banquet Room of the Hotel Vancouver. The guest speaker for the evening was C. E. G. Gould, B.A., M.D., who is a well known Vancouver psychiatrist. He told us many amusing stories pertaining to his profession and professional brothers. After the speech a talented group from CBC Vancouver studios performed, entertaining us with several vocal and instrumental numbers. The final item on the programme for that day was having a group picture taken. There were 128 delegates present, all from the four Western Provinces with the one exception of Miss Eileen Kemp from Ontario, the President of our Canadian Society of Laboratory Technicians.

The lectures on Saturday, May 14th, proved to be very interesting and educational. At 9 o'clock we heard John Eden, M.B., B.S. (Dunelm.), Chemical Pathologist of Vancouver General Hospital, speak on "The Chemical Evaluation of Hepatic Function." The next paper was given by David A. Steele, B.A., M.D., on "Ulcerative Colitis." Dr. Steele has suffered from this ailment himself and thereby is a real expert on that subject. At noon we all went to the "White Spot" for luncheon. The "White Spot" is one of Vancouver's favorite restaurants and a tourist attraction. For the information of the gourmets who might read this resume, we enjoyed a most delicious chicken dinner. In the afternoon one of the most interesting and impressive papers of the convention was presented, one that most of the technicians, I am sure, would find very helpful. The paper "An Exposition of the Recommended Terms and Definitions for Cells of the Blood and Blood Forming Organs" was read by Dr. Edwin E. Osgood, M.A., M.D., head of the Division of Experimental Medicine, University of Oregon Medical School. Most technicians would be familiar with his textbook. Dr. Osgood, who was a chairman of the committee formed of all the leading Hematologists in America, explained to us how they had all got together and with co-operation of the English speaking countries, about 85% of the Committee had agreed to adopt the more modified and uniform method of identification and naming of the cells. We were given a condensation of the first two reports of the com-

mittee for clarification of the nomenclature of cells and diseases of the blood and blood-forming organs. Dr. Osgood very graciously autographed my copy. After the lecture, which had been held in the auditorium of the Shaughnessy Hospital, members of the Red Cross served us tea. After tea a business meeting followed. The main discussion being—should medical technologists join the Union? The final decision is to be made by the Executive at the General Meeting which will be held at Ottawa the first part of June.

On Sunday we had a bus trip through the famous Stanley Park, which is certainly well worth seeing for all those who visit Vancouver. I was especially impressed with the size of the trees and when I returned home the trees in Kildonan Park had never seemed so small. We also drove through the British Properties. This tract of land on the north of Vancouver is being developed for a very exclusive residential district . . . a fact not hard to detect when one observes the prices of the lots. To reach the properties one has to cross the Lion's Gate bridge, a beautiful suspension bridge owned by the Guinesses, manufacturers of the well-known British Guinness's Stout. We then proceeded to Horse Shoe Bay where we boarded a motor launch bound for Bowen Island. There we had dinner at the C.P.R. Bowen Island Inn. We remained there till 6 o'clock in the evening and returned to Vancouver on a small steamship.

Next day I left at 10.30 in the morning by a steamer for Victoria. The day and the trip were very nice. Sea Gulls followed the ship all the way and some of them are extremely tame. They are a very graceful bird and I tried to take pictures of them in flight. Upon arriving I was met by Mr. Teal, who for many years worked at the Winnipeg General Hospital and who is now employed at the Victoria Royal Jubilee Hospital as technician-in-charge. I was interested in visiting the hospital laboratory and noting their equipment and methods. A trip to Victoria would not be complete without a visit to the Bouchart Gardens and it is indeed a very beautiful place. At 11 o'clock that evening I left Victoria and spent my first night on board a steamer and was lulled to sleep by the gentle lapping of the waves. Tuesday evening, May 17th, I said goodbye to Vancouver and started on my return trip via C.P.R. through the mountains. The Connaught Tunnel is an interesting feature along this route. This tunnel is nearly five miles long and is the longest on the American continent. At Kicking Horse Pass, the famous Spiral tunnels bore for more than 6,000 feet through rock entering Cathedral Mountain from the east. The railway circles down to daylight and through the second tunnel under Mount Ogden, a descent of 104 feet inside the mountains and forming a complete figure eight. Near Banff there

is a cave in the side of a mountain which is called The Hole in the Wall and it is big enough to hold 500 people. A clear day enabled me to get a good view of Mount Eisenhower, Mount Stephen and the Three Sisters. For years I have heard of the Great Divide but I actually never knew how the name originated until a fellow passenger explained it to me. Six miles west of Lake Louise, the Great Divide marks the boundary of Alberta and British Columbia between Rocky Mountain Park and Yoho. It is here that a glacier-fed stream, spanned by a rustic bridge, separates into two small brooks. One winds to Hudson Bay and so to the Atlantic Ocean, the other flows into the Pacific.

And so back through the prairies to Winnipeg and the Clinic! It was a short, interesting and informative trip and a nice change. The weather was perfect for the whole eight days. Conventions offer a wonderful opportunity for the exchange of new ideas and techniques and one can observe how other people do things. It is impossible to give in detail here the papers that were presented at the convention as they are too lengthy to be included in this summary but they will be reprinted in the Canadian Journal of Medical Technology.

In conclusion I wish to thank Dr. E. L. Ross, Dr. D. L. Scott and the Sanatorium Board, who made my trip possible.

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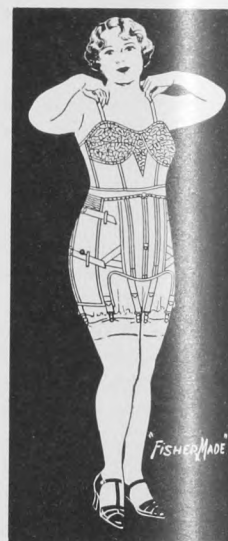
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EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

Why Not Get the Money You Earn

On the afternoon and evening of the second day of the Convention will be held the annual business meeting of the Association. Usually such meetings are very poorly attended, a state of affairs which is definitely unfair to the men who have gone to great pains in order to further and safeguard our interests. But apart from showing a decent appreciation of the labours of our colleagues in the Executive or on the Committee there is a strong selfish and personal reason why the business meetings this year should be well attended. In this time of change every decision is important and affects all of us. At this meeting matters of great importance will be discussed and, unless the attendance is large, the decisions reached will be those of a minority of the membership.

Among other matters coming up for discussion is the treasurer's report on the M.M.S. Dr. McNulty has gone into the financial affairs of the M.M.S. with great exhaustiveness and he is satisfied that certain changes will make it possible for every subscribing doctor to get 80% or more of the monies he claims. It is worth your while to find out why you are getting less and how you can get more. Inasmuch as the M.M.S. is our corner-stone for a Health Service and inasmuch as a government plan is almost certainly soon to be formulated and even in action we should make our plan as solid and fault-free as possible, and that's your job as well as that of your Executive.

Our Group Insurance

This is to remind you, in case you may have forgotten, that a plan of Group Insurance (against accidents and sickness) is available to all members of the Association. **Unlike other insurance plans this accepts pre-existing disabilities** and nothing will cancel any of its benefits except (1) failure to pay the premium (2) reaching the age of 70 (3) retirement from practice or ceasing to remain a member of the Association. There is another cause for cancellation — if the number of subscribers falls below 50% of the Association membership. Because of this latter clause it is desirable that all members subscribe, not only that they may have protection themselves but also to make sure that others do not lose it. Even if one carries other protection an extra \$60.00 per week (which costs \$97.00 a year) will come in handy if sickness strikes. Moreover there is no haggling when it comes to payment. It is much better to have something you don't need than to need some-

thing you don't have. One subscriber was unlucky enough to develop a severe and lengthy illness ten days after he paid his premium, but lucky enough to have the benefits, which he still enjoys and will continue to enjoy, if necessary, for two whole years. If so far you have not subscribed we suggest that you get in touch with Mr. Wm. C. Brunning, Electric Railway Chambers, Winnipeg.

The Policy of the Association

Reprinted from The Canadian Medical Association Journal, August, 1949.

For many years the Association has studied the problem of medical economics. A series of principles was gradually evolved, but no clear policy was outlined. It is realized now that the trend of events is unquestionably towards some form of governmental control of medical services, and it is therefore imperative that we should decide what we want and formulate some policy of our own. As a result of prolonged discussion at the Council meeting in Saskatoon such a policy was eventually outlined. It is laid down in the following statement which was adopted by the General Council of the Canadian Medical Association on June 14, 1949.

Statement of Policy

1. *The Canadian Medical Association, recognizing that health is an important element in human happiness, reaffirms its willingness in the public interest to consider any proposals, official or unofficial, which are genuinely aimed at the health of the people.*

2. *Among the factors essential to the people's health are adequate nutrition, good housing and environmental conditions generally, facilities for education, recreation and leisure; and not least, wise and sensible conduct of the individual and his acceptance of personal responsibility.*

3. *It is recognized and accepted that the community's responsibility in the field of health includes responsibility not only for a high level of environmental conditions and an efficient preventive service, but a responsibility for ensuring that adequate medical facilities are available to every member of the community, whether or not he can afford the full cost.*

4. *Accordingly, the Canadian Medical Association will gladly co-operate in the preparation of detailed schemes which have as their object the removal of any barriers which exist between the people and the medical services they need which respect the essential principles of the profession.*

5. *The Canadian Medical Association hopes that the provincial surveys now being conducted will provide*

information likely to be of value in the elaboration of detailed schemes.

6. *The Canadian Medical Association, having approved the adoption of the principle of health insurance, and having seen demonstrated the practical application of this principle in the establishment of voluntary prepaid medical care plans, now proposes:*

(a) *The establishment and/or extension of these plans to cover Canada.*

(b) *The right of every Canadian citizen to insure under these plans.*

(c) *The provision by the State of the health insurance premium, in whole or in part, for those persons who are adjudged to be unable to provide these premiums for themselves.*

7. *Additional services should come into existence by stages, the first and most urgent being the meeting of the costs of hospitalization for every citizen of Canada. The basic part of the cost should be met by individual contribution, the responsible governmental body bearing, in whole or in part, the cost for those persons who are unable to provide the contribution for themselves.*

Prescription Drug Order Clarified

The recent revision of the food and drug regulations (P.C. 1536, 5th April, 1949), has effected a clarification of the so-called prescription drug order which limits sale to the general public of certain drugs to prescription only, officials of the Department of National Health and Welfare point out.

1. One obscurity has been removed by the definition of prescription which has to be in writing. A telephoned order does not constitute a prescription, but a pharmacist may execute an order over the telephone in an emergency for any of the drugs in question provided he be supplied with a written prescription covering them within 24 hours. If he fails to obtain that prescription, he has committed an offence under the Food and Drugs Act: he has sold the drugs otherwise than on prescription.

2. In the food and drug regulations, a prescription is defined (A02016) as "a written order issued and signed by any person authorized to treat patients with drugs in any province of Canada directing the dispensing of a stated amount of any drug or mixture of drugs to the patient named in such order." This prohibits refills, but the prescriber is free to specify in writing how many times it may be repeated, e.g., twice, five times or 10 times, as need be, and the pharmacist is entitled to honor such directions. But the actual number of refillings must be specified on the original prescription.

3. A pharmacist is within his rights to decline to fill a prescription if he has reason to believe it has not been presented in good faith or that it is an attempt to circumvent the law or that it has been tampered with. In such cases, tactful questioning usually brings out the facts.

4. Seeing that a pharmacist is responsible for having in his possession properly authorized prescriptions for drugs on this list which he has sold, it is the duty of prescribers to supply such prescriptions immediately. As the merchant sells goods on credit, believing in the honesty of the purchaser to pay for them, so likewise the pharmacist, accepting a telephone order for these drugs in an emergency, relies on the good faith of the prescriber to cover him with a prescription within 24 hours after giving the order for them. Prescribers, therefore, are urgently requested to co-operate with pharmacists in this important detail.

Obituary

Dr. Robert Kennedy Chalmers, of Miniota, died suddenly on July 27 while attending a patient at Beulah. He graduated in medicine from Manitoba Medical College in 1900 and practised continuously at Miniota. On June 21 he celebrated his 77th birthday. He was chairman of the Miniota municipal school district, an active member of Parkissimo Lodge, I.O.O.F., and a member of the United Church.

Winnipeg Medical Society To Conduct Own Community Chest Campaign

In response to a request from Mr. H. D. Barbour of the Community Chest of Greater Winnipeg, the Executive of the Winnipeg Medical Society has decided to conduct its own campaign in Greater Winnipeg.

Plans are being made for our campaign to take place from October 1 to October 12 before the official effort starts, in the hope that our results will have inspirational value to the general campaign.

It is planned to solicit the help of strategically placed doctors, in order that every member of the profession may be personally canvassed for his or her donation. No doctor will be asked to solicit from more than three or four individuals, so please be prepared to help out. Dr. Hartley Smith has been appointed to head a special committee of your Society to take care of this canvass. Remember; your contributions are deductible from your income tax.

BOOK REVIEWS



The Value of Hormones in General Practice is a wire-bound book of 115 pages. The author states that his "manual has been prepared for the express purpose of assisting general practitioners in the fullest possible utilization of the many hormonal preparations now available." Following an Historical Review the subject of endocrinology is covered in eighteen chapters. The various ductless glands are taken in order. Some mention is made of physiological principles, then the various syndromes affecting the gland being considered are described with differential diagnosis, methods of treatment are outlined and a useful table of available products with their manufacturers is given. A bibliography concludes each section.

The book will prove useful to those who wish only a brief summary of the subject. A useful feature is the listing of products and their manufacturers.

The Value of Hormones in General Practice, by W. M. Kemp, M.D., Vancouver, B.C. Burgess Publishing Co., Minneapolis (or from the author). \$3.00.

♦
Rational Medicine, by John W. Todd, M.D. (London), M.R.C.P. (London), Assistant Physician to Farnham Hospital; late Lt.-Col. R.A.M.C.; late Resident Medical Officer, Middlesex Hospital, London. Price \$6.25. Macmillan Co. of Canada Ltd., Toronto.

It must be agreed that to a large extent the practice of medicine is more or less mechanical. The fact that so many customs have been in vogue for years (e.g. the restriction of fluids in the dropsical, the feeding-by-the-clock of infants) is proof that we are inclined to follow tradition. To be efficient, however, our practice must be individualised and it must be rational.

The purpose of this book is to stress these points. It goes into detail regarding the analysis of symptoms, and the nature and interpretation of signs. These, however, are preliminary to the chief matter of treatment. The basis of rational treatment is an understanding of the patient under treatment and chapters are devoted to the logical application of drugs, diet, etc., to the individual patient. Physiotherapy gets a chapter and psychotherapy another. In "The Black Chapter of Medicine" is given the life story of an invalid, tracing from the seeds sown in childhood the enduring, pernicious tree of chronic unhealth and unhappiness.

There is a tendency to prolixity but otherwise the book deserves the good notices it has been given elsewhere. It is a useful book well calculated to arouse thoughtful particularization of each individual patient and a more thoughtful attitude towards practice in general.

Medicolegal Problems

About a century ago a Professor of Chemistry, Dr. Webster, being hard up, borrowed some money from his friend, Dr. Parkman. When the time came to pay, Webster was still "broke" and he settled the debt by bashing in the head of Parkman. Parkman's disappearance caused somewhat of a sensation, and an astute lawyer, having some hint of the financial transaction, explored Webster's laboratory where, in the furnace were found some bones and a denture.

The interest to us is not in the circumstances of the murder but in the fact that here, for the first time, a dead man's bones testified against his slayer. Since then this particular branch of criminology has vastly developed; to such a point, indeed, that a few calcined bony fragments have been sufficient to reconstruct the victim in many homicides. Perhaps the most brilliant exponent of this new science is W. M. Krogman, Professor of Physical Anthropology in the University of Pennsylvania. How he goes about his business is described (with cases and photographs) in "The Human Skeleton in Legal Medicine" — the first chapter of Lippincott's second series of *Medicolegal Problems*.

This little book must be a *sine qua non* for everyone interested in forensic medicine but it can be read with pleasure and profit by many who have little touch with the law. It is not "deep" in the sense that only criminologists and lawyers can understand it. It is indeed simple enough for the comprehension of any intelligent layman.

The other subjects discussed are: Psychiatry and the Civil Law; Psychiatry and the Criminal Law; Federal Control of Drugs and Cosmetics; Radiation Hazards and Health Protection in Radioactive Research. All of these topics are considered in the same way. First is the Medical presentation then the Legal presentation and finally a General Discussion by the eminent doctors and lawyers who attend the session where these matters were discussed.

As mentioned it is a "must" for all those whose work lies, wholly or in part, with criminals. But most of us are not so employed and yet, despite its limited field, indeed because of it, the book will give interesting reading to doctors in all fields of practice.

⚡ **Symposium on Medicolegal Problems**, by Samuel A. Levinson, M.D., Ph.D., University of Illinois, College of Medicine. Under the co-sponsorship of the Institute of Medicine of Chicago, Chicago Bar Association and Chicago Medical Society. Series 11. J. B. Lippincott Co. Ltd., Montreal, Canada. Price, \$6.00.

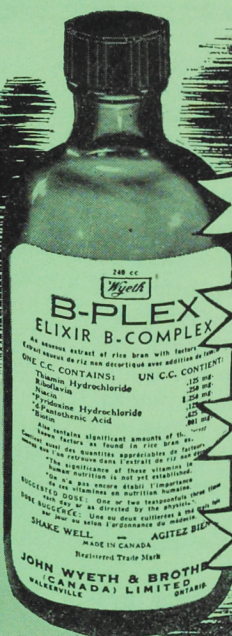
✓ *Check
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Each 8 ml. (two teaspoonfuls) will provide:

Thiamine.....	1 mg.
Riboflavin.....	2 mg.
Niacinamide.....	10 mg.
*Pyridoxine.....	1 mg.
*d-Pantothenic Acid.....	5 mg.
Biotin.....	.008 mg.

*The significance of these vitamins in human nutrition is not yet established.

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SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

Belated, but sincere welcome back to Dr. Walter Alexander, who a couple of months back, returned from spending a most interesting and instructive post-graduate session with Dr. Julius Lempert at the Fenestration Hospital in New York. Wally spends so much time out of town doing P.G. work that I have trouble catching him to find out where he has been.

Also belated, but this time not my fault, from the Charles T. Miller Hospital, St. Paul 2, Minn. Dr. J. A. (Sandy) McNeill has left his practice at Gretna as of July 15, to take a three-year residency in Ophthalmology here, under Dr. E. P. Burch. He was joined by his wife and family the latter part of July. Dr. J. P. Boreski, formerly of Altona, has taken over Dr. McNeill's practice in Gretna. The best wishes of us all to both in their new ventures.

Sincere congratulations to Dr. David E. Aikenhead, London, England, on two counts. First, the birth of Tannis Linda on Aug. 4, 1949, and much secondary his receiving his M.R.C.P., London. Of course, I think the child is more important and I bet Grandpa and Grandma do too.—Dave Sr. is having more trouble than ever, keeping that operating room gown meeting over his chest.

It was grand Saturday last to have the pleasure of showing my pups and a couple of beers to our old friend Dr. Lynn Falconer and his family. They are en route, bag and baggage, from Ottawa to Edmonton where Lynn will take over Superintendancy of the Indian Affairs Hospital and the Dept. affairs of the District. Happy landings. I surely had to watch carefully that one cocker pup didn't become native of Edmonton too. Don't blame the kids, they are cute pups—except at 6 a.m. By the way, Lynn tells me that Dr. Harry Lewis is now retired and happily ensconced in Victoria, B.C.

Dr. Doreen Corke (Mrs. W. H. Sheffield) with Mr. Sheffield, John and Anne, spent their vacation with her parents, Mr. and Mrs. G. B. Corke, Jubilee Ave. They are located in Washington, New Jersey.

That most interesting picture of Mrs. C. M. Strong on her terrace intrigues me. The garden furniture made by Con. looks to be out of this world. I wonder if Mr. Strong would mind if I had a little extramural advice on David's room in the basement for that blasted train which is keeping me broke.

Welcome to Winnipeg to Dr. Doris Newcomb of Hartford Hospital, Boston, etc., who is in the O.R. at the General—on exchange P.G. Anaesthesiology contract for three months. A marvelous idea! If instituted a few years ago I would probably still be taking orders from the surgeons.

Dr. and Mrs. Alan B. McCarten, with Brock and Rosemary, returned recently from London, England, where Dr. McCarten was doing P.G. work at the Royal Cancer Hospital. They have been guests of Dr. and Mrs. D. A. McCarten at Clearwater Bay, and are en route to Edmonton, Alta., where they will reside.

Welcome to the Medical Arts to Dr. J. C. Pincock who is opening his office at 527, in Internal Medicine.

Romance still reigns supreme in spite of the weather.

Dr. and Mrs. R. A. Classen announce the engagement of Therese Gertrude to Mr. John A. Quinn, son of Mr. and Mrs. M. A. Quinn. The wedding will take place Sept. 10, at 8 p.m., in St. Paul's United Church.

The engagement is announced of Catherine Mary, daughter of Mrs. MacDougall and the late Dr. Dan MacDougall, to Alfred Hugh, son of Mr. and Mrs. A. H. Nuttall. The wedding will be in Knox United Church at 7 p.m., Sept. 10.

The engagement is announced of Sybil Marjorie (Malca) daughter of Mr. and Mrs. Max Marcoe, to Dr. Isadore L. Lazareck, son of Mrs. J. L. Lazareck and the late Mr. Lazareck. The wedding will be Sept. 8th at the Royal Alexander Hotel, Winnipeg.

Mr. and Mrs. J. W. Chesen, of Lincoln, Nebraska, announce the engagement of Barbara, to Dr. Irvin Zeavin, son of Dr. and Mrs. Samuel Zeavin, Winnipeg. The wedding will be in the late autumn.

Congratulations to:

Dr. and Mrs. T. L. Quong, Hong Kong, China, on the birth of a son, Calvin.

Dr. and Mrs. R. W. Pringle, their daughter, Vivien Claire.

Dr. and Mrs. J. K. Friesen, a daughter, Melanie Joan.

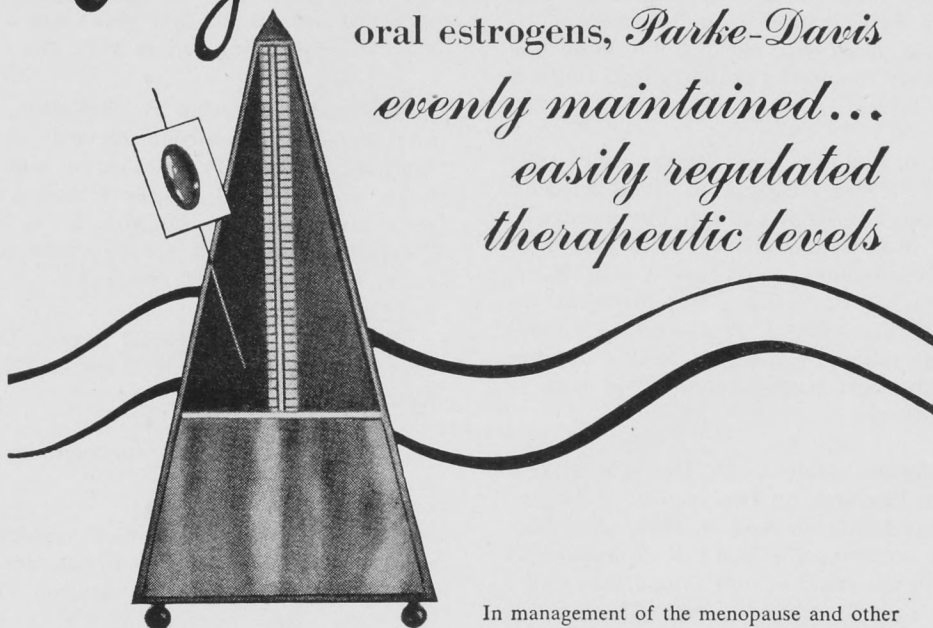
Dr. and Mrs. W. S. Pollard, their daughter, Linda Jean, Aug. 18th.

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Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1949		1948		Total	
	June 19 to July 16, '49	May 22 to June 18, '49	June 13 to July 10, '48	May 16 to June 12, '48	Jan. 2 to July 16, '49	Dec. 28, '47 to July 10, '48
Anterior Poliomyelitis	4	2	4	0	13	7
Chickenpox	107	128	311	333	879	1852
Diphtheria	1	0	5	1	13	14
Diphtheria Carriers	0	0	2	1	2	3
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	3	0	1	3	7	4
Erysipelas	3	1	3	4	18	21
Encephalitis	0	0	0	1	0	1
Influenza	9	28	5	4	152	119
Measles	405	1153	120	157	4787	450
Measles—German	6	33	0	1	91	31
Meningococcal Meningitis	3	3	2	0	17	8
Mumps	44	91	110	214	866	1277
Ophthalmia Neonatorum	0	0	0	0	0	0
Pneumonia—Lobar	14	12	10	15	128	112
Puerperal Fever	0	1	0	0	2	1
Scarlet Fever	9	9	12	28	64	138
Septic Sore Throat	1	6	2	2	23	14
Smallpox	0	0	0	0	0	0
Tetanus	0	0	1	0	1	2
Trachoma	0	0	0	0	0	0
Tuberculosis	87	92	312	258	447	1106
Typhoid Fever	1	1	1	2	5	5
Typhoid Paratyphoid	0	0	1	0	0	1
Typhoid Carriers	0	0	0	0	1	0
Undulant Fever	0	0	0	2	6	11
Whooping Cough	20	26	5	16	130	208
Gonorrhoea	125	78	126	105	735	774
Syphilis	34	32	33	43	233	281
Diarrhoea and Enteritis, under 1 yr.	13	14	11	15	95	118

Four-Week Period June 19th to July 16th, 1949

DISEASES (White Cases Only)	*743,000 Manitoba	906,000 Saskatchewan	3,825,000 Ontario	2,962,000 Minnesota
*Approximate population.				
Anterior Poliomyelitis	4	2	46	130
Chicken Pox	107	341	875	---
Diarrhoea and Enteritis	13	4	---	---
Diphtheria	1	---	4	---
Dysentery—Amoebic	---	---	1	7
Bacillary	3	---	---	5
Influenza	9	2	12	4
Erysipelas	3	1	3	---
Encephalitis	---	2	2	3
Malaria	---	---	---	4
Measles	405	1004	890	169
Measles, German	6	75	94	---
Meningococcal Meningitis	3	---	1	3
Mumps	44	7	482	---
Pneumonia Lobar	14	---	---	---
Septic Sore Throat	1	1	3	---
Scarlet Fever	9	1	116	27
Tuberculosis	87	60	77	180
Typhoid Fever	1	2	1	1
Undulant Fever	---	---	4	22
Whooping Cough	20	4	58	9
Gonorrhoea	125	---	103	---
Syphilis	34	---	50	---

Anterior Poliomyelitis—At date of writing (August 12th) twenty-five cases of Poliomyelitis have been reported in Manitoba. Very few of these show any paralysis. Ontario, Minnesota and British Columbia all show a higher incidence than usual.

Diarrhoea and Enteritis in infants is always a problem at this time of year. A nasty outbreak among Indian children has occurred at Churchill, causing five deaths. Good hygiene and sanitation (including food handling) would go a long way in wiping out this infection.

Typhoid Fever—Another case from the Sandy Bay Reserve which is one of our bad spots for Typhoid!

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period June 15th to July 12th, 1949

Urban—Cancer, 43; Influenza, 1; Measles, 2; Pneumonia Lobar (108, 107, 109), 1; Pneumonia (other forms), 8; Syphilis, 3; Tuberculosis, 5; Diarrhoea and Enteritis, 2; Other Diseases due to Spirochetes, 1. Other deaths under 1 year, 22. Other deaths over 1 year, 168. Stillbirths, 15. Total, 205.

Rural—Cancer, 25; Influenza, 3; Measles, 2; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 9; Tuberculosis, 7; Whooping Cough, 1; Diarrhoea and Enteritis, 14. Other deaths under 1 year, 10. Other deaths over 1 year, 143. Stillbirths, 12. Total, 165.

Indians—Influenza, 4; Pneumonia (other forms), 5; Tuberculosis, 1; Diarrhoea and Enteritis, 2. Other deaths under 1 year, 2. Other deaths over 1 year, 7. Total, 9.

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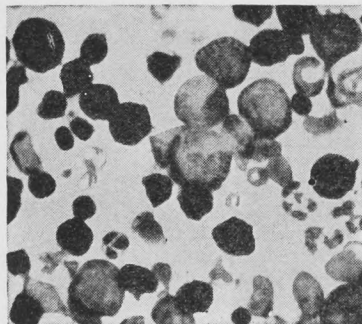
- ★ **PERNICIOUS ANEMIA (uncomplicated)**
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- ★ **PERNICIOUS ANEMIA in patients sensitive to liver preparations**
- ★ **NUTRITIONAL MACROCYTIC ANEMIA due to Vitamin B₁₂ deficiency**
- ★ **MEGALOBlastic ANEMIA OF INFANCY (certain cases)**
- ★ **SPRUE (tropical and nontropical)**

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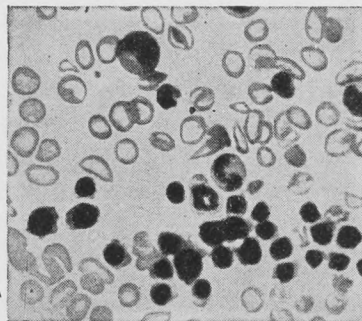
- A pure, crystalline compound of extremely high potency.
- Effective in extremely low doses, because of its high potency.
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- No known toxicity in recommended dosages.
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Literature available on request.

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Smear showing megaloblastic bone marrow of patient with pernicious anemia before treatment with Cobione



Bone-marrow smear from same patient ninety hours after a single injection of 0.025 mg. of Cobione

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COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

M. T. Macfarland, M.D., Registrar

(Continued from August Issue)

Business Arising From Minutes of Disciplinary Committee Meeting Held May 3rd, 1949

(a) Disciplinary Proceedings

Dr. Alford stated that under the Medical Act the Council has very little disciplinary power except extreme measures. He read a letter dated May 9, 1949, from the solicitor, Mr. T. W. Laidlaw, who outlined the various sections of the Act relevant to disciplinary powers of the Council. Mr. Laidlaw stated that "There does not seem to be any provision in the Act for dealing with minor disciplinary matters involving professional misconduct of such a character that it would not justify erasure as there is no power to suspend or fine, although I would be of the opinion that the Council has power to reprimand." "The powers of the Council are statutory and must be strictly and carefully followed."

Dr. Williams said that it was possible in other provinces to take minor disciplinary action and suspend a registrant for a number of months. He suggested that the Registrar investigate what is done in other provinces in these matters, while attending the meeting of the Registrars in Saskatoon.

Dr. Best thought that it would be necessary to have a definition of misconduct, and that it would be a difficult job since two persons would not agree on two cases of minor misconduct.

Dr. Johnson said that it would be impossible to outline all possible misconducts which would arise for disciplinary action, but there are some that could be outlined. He stated that Saskatchewan outlines various misconducts.

Dr. Lederman suggested that the matter be referred to the committee to study the Medical Act, with reference to the mimeographed sheets which had been forwarded to Council, outlining the disciplinary powers of various other provinces.

Dr. Best stated that it might be possible to write to a physician or interview him warning him that the Council does not agree with his behaviour. A reprimand might suffice and save him from getting into worse trouble.

Motion: "THAT the Discipline Committee be requested to make a study of possible revision of the Medical Act re misdemeanor, and report at the next Council meeting with recommendations." Carried."

(b) Dr. _____

The Registrar reported that he had written a letter to Dr. _____ on May 14, but had received no reply to date. He also read a letter dated

May 14th from the superintendent of the _____ Hospital.

Dr. Stewart stated that Dr. _____ had been warned by letter, and that no further action could be taken according to the Medical Act.

(c) Dr. _____

The Registrar outlined the various correspondence from and to the Workmen's Compensation Board and Dr. _____. He presented a letter dated May 2nd from Dr. _____ stating that all reports have been submitted and giving his assurance that in the future all reports will be submitted in due time. The Registrar also presented his letter of May 14th to Dr. _____, a copy of which had been sent to the Workmen's Compensation Board, and he stated that he had heard verbally from Dr. Fraser that it was acceptable.

(d) _____ Drug and Optical Store

A member stated that Dr. _____ of _____, had handed him the clippings of the _____ Drug and Optical Store which appear in the _____ Recorder, and asked him if there was anything that could be done about the advertising. No name appears in the ads, but it is known that Dr. _____ owns and operates the store.

The Council considered if Dr. _____ had any further complaint he should put it in writing.

(e) Irregular Practitioners

Discussion deferred.

D. Finance Committee

The Treasurer reported that at a meeting of the Finance Committee held previous to this meeting, the following motions were prepared for confirmation at this meeting.

Motion: "THAT Dominion of Canada 3% fully registered bonds to the face value of \$2,000.00 be purchased from available interest earnings on hand for the Investment Trust Account." Carried.

Motion: "THAT Dominion of Canada 3% fully registered bonds to the face value of \$2,000.00 be purchased from available interest earnings on hand for the Gordon Bell Memorial Account." Carried.

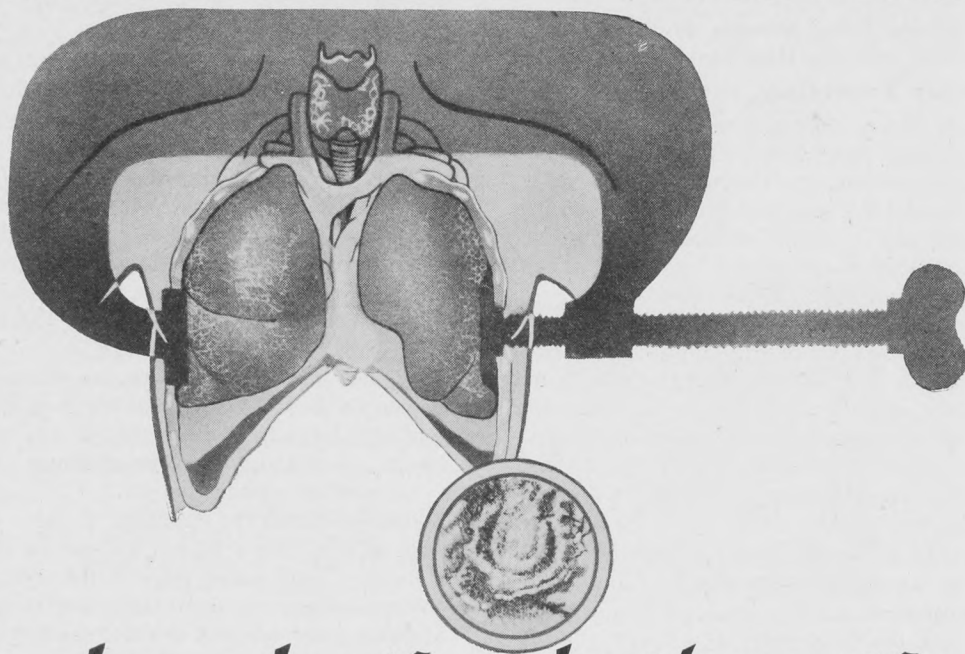
5. Reports of Special Committees and Their Consideration

A. Representatives to the Manitoba Medical Association Executive

Dr. Johnson reported that he had attended the meetings with the President. He did not think there was anything to bring up at the present time that had not been discussed under previous headings, particularly with reference to the Fee Taxing Committee.

B. Trustees of the Gordon Bell Memorial Fund

No report.



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C. Representatives to the Committee of Fifteen

No report.

(Refer Legislation outlined in Manitoba Medical Review for July, 1949).

D. Representative to the Committee on Admissions
No report.

The Registrar reported that Dr. H. Bruce Chown, representative of the Council on the Admissions Committee, was away from the province for a number of months, and requested an appointment be made for another member to attend any meetings which may be held during the time Dr. Chown will be away.

Motion: "THAT Dr. T. H. Williams be appointed as representative to the Admissions Committee to attend any meetings which may be called before Dr. H. Bruce Chown's return to the city." Carried.

E. Representatives to the Medical Council of Canada

No report.

F. Representative to the University Senate
No report.

G. Representatives to the Cancer Institute

Dr. Macfarland reported that a controversial matter has been before the Board of the Cancer Relief and Research Institute. The Union of Municipalities have made available \$20,000.00 which was matched by the Provincial Government, and that sum of \$40,000.00 matched by the Federal Government, totalling \$80,000.00, has been made available for Cancer Diagnostic Clinics. The Medical Advisory Board of the Cancer Institute met, but were not able to formulate a definite plan. It was decided that the 3 representatives of the M.M.A. with the Chairman of the Medical Advisory Board, should meet with the Executive of the Association and discuss the matter. The Executive approved the plan to establish Cancer Diagnostic Clinics at two of the teaching hospitals in Winnipeg subject to the appointment of a committee of the Association and the Cancer Institute, to determine conditions of service and remuneration to be paid. With that resolution the Medical Advisory Board tackled the problem again, and it was given to two members to formulate a plan. The plan came back in rough outline to the Medical Advisory Board and was referred to the hospitals concerned. The proposals are now being discussed by the staffs of the St. Boniface and General Hospitals.

Motion: "THAT the report of the representative to the Cancer Relief and Research Institute be adopted." Carried.

6. Election of Officers and Standing Committees

Not applicable at this meeting.

7. Reading of Communications, Petitions, etc., to the Council

A. Red Cross

Mimeographed letters from the Canadian Red Cross Society were presented requesting donations

for the Blood Transfusion Service, and their National Appeal.

Motion: "THAT this Council is of the opinion that since each doctor is canvassed individually, there was no need for a donation from the College." Carried.

B. Dr. _____ and Dr. _____

The Registrar reported that he had received requests from Dr. _____ and Dr. _____ for copies of their original registration certificates. They both state that they have lost their certificates. The Council were of the opinion that since the certificates of registration had been lost, apparently through carelessness, that they should be charged for a duplicate.

Motion: "THAT Dr. _____ and Dr. _____ be requested to forward affidavits that they have lost their Certificates, upon receipt of which a new Certificate of Registration be issued, marked duplicate, and a charge of Five Dollars (\$5.00) be made." Carried.

C. Department of National Health and Welfare—Narcotic Division

The Registrar presented a list of firms and persons to whom no sales of narcotics should be made without first consulting the Narcotic Division. He drew to the attention of Council the fact that the names of three practising physicians in the Province of Manitoba appear on the list.

D. Dr. A. H. S. Gillson, President, University of Manitoba

The Registrar presented a letter, dated May 14, 1949, from President Gillson, advising that Dr. A. T. Mathers, Dean of the Medical Faculty of the University of Manitoba, is retiring as Dean at the end of the current session, and requesting that the Manitoba Medical Association and the College of Physicians and Surgeons nominate, jointly, one representative of the medical profession to act on a committee to consider a recommendation to the Board of Governors of the University for the Deanship of the Medical Faculty.

Motion: "THAT the President, Dr. C. B. Stewart, be appointed representative of the College of Physicians and Surgeons to the committee to consider a recommendation to the Board of Governors of the University for the Deanship of the Medical Faculty." Carried.

8. Inquiries

A. College of Physicians and Surgeons of Saskatchewan

Dr. Macfarland drew to the attention of the Council a letter received from Dr. G. G. Ferguson, Registrar, C.P. & S., Saskatchewan, requesting the number of patients who attended at the Winnipeg hospitals from Saskatchewan, outlining those who were partly assisted by the Saskatchewan Hospital Plan, and those who received no assistance from the Plan. He reported that he had made inquiries

to each of the Winnipeg hospitals and the General Hospital at Brandon, and had received replies from 3 to date.

9. Notices of Motion

None.

10. Motions of Which Notice Has Been Given at Previous Meetings

Dr. Williams reported that the Finance Committee had met previous to this meeting and had made some changes in the Notices of Motion.

Motion: "THAT By-law 42A be the same as in October, 1948 notice, namely: 'There shall be paid to each member of Council for attendance at Council meetings a fee not exceeding \$25.00 per day, with to members outside of Greater Winnipeg an additional like amount for each day necessarily required for travel to and from Winnipeg, and travel expenses at the rate of Ten Cents per mile both ways.'" Carried.

Motion: "THAT By-law 42B be changed to read: 'There shall be paid to each member of Council in the City of Winnipeg or its suburbs for attendance at any committee meeting the sum of \$5.00, and to those outside Winnipeg and suburbs the sum of \$10.00 and mileage at Ten Cents per mile both ways. The same amounts shall be paid to members outside the Council when representatives on any committee.'" Carried.

Dr. Williams explained that the Finance Committee considered that \$25.00 per day for attendance at Council meetings in May and October is not too much out of the way, but that we would not be able to square ourselves with the profession if we paid \$25.00 per day for committee meetings which are usually noon meetings and last until about 2 o'clock p.m. Our estimate for the coming year 1950-51 at the rates proposed will be \$9,975.00 income and \$9,400.00 expenditure.

Dr. Poole suggested that there were too many members on the Council, and requested that the Registrar find out how many members there are on each provincial council, from the Registrars of the various councils in Saskatoon.

Motion: "THAT the by-law concerning annual fees be changed to read: 'THAT the annual fee payable by members of the College be raised to Five Dollars (\$5.00) effective January 1, 1950.'" Carried.

Dr. Williams stated that the annual fee was formerly deductible for income tax purposes, but

since January 1, 1948, it is not deductible. He also stated that the fee has been \$2.00 ever since the College was formed, and it now barely pays the office expenses of sending out accounts and receipts, etc.

Dr. Johnson pointed out that under Section 42A of the By-laws, it would be necessary for the Council to name the amount to be paid at each meeting.

Motion: "THAT for the Council Meeting of May, 1949, the amount paid to members for attendance be at the rate of \$25.00 per day, and mileage as stated in the By-law." Carried.

11. Unfinished Business From Previous Meetings

None.

12. Miscellaneous and New Business

A. Payment of Janitor

Motion: "THAT the janitor be paid Five Dollars (\$5.00) for his services at this meeting, plus the charge for the refreshments." Carried.

B. Election Year

The Registrar pointed out that this was the year a new Council would be elected, and stated that the scrutineers had already been appointed at a previous meeting. With regard to the electoral districts the Registrar quoted the following extract from the minutes of a Council meeting held October 20, 1937:

"Regarding the section of elections, it was questionable as to the interpretation of the division of the electoral districts, in respect to whether it means that all electoral districts should be considered as constituted in 1923, or only the Winnipeg districts. The Council was of the opinion that the 1923 referred only to the Winnipeg districts, and that the other would come under the divisions as constituted at the time of any election."

Motion: "THAT the election be conducted according to Section 5(c) of the Medical Act, and that "as now constituted" be taken to mean as 1940." Carried.

Adjournment: "THAT the meeting be adjourned." Carried.

Registration Committee — June 2nd, 1949

Enabling Certificate Granted: John Stolar, M.D., Catholic University of Louvain, Belgium, 1939.

Enabling Certificate Deferred: Victor Kleider, M.D., University of Vienna, 1942. Jiri Munk, M.D., Charles University in Prague, Czechoslovakia, 1945. Huuthoi Trieu, M.D., University of Paris, 1936.